John Cranford,

M. D.

# MEDICAL FACTS

AND

# OBSERVATIONS.

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VOL. IV.

# MEDICAL FACTS

AND

# OBSERVATIONS.

VOLUME THE FOURTH.

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UNIVERSITY OF MARYLAND
1813

# MEDICAL FACTS AND OBSERVATIONS.

I. *Observations on the Fevers and Dysentery of hot Climates; and on the Use of Mercury in those Diseases. By Mr.* William Boag, *Surgeon in the Service of the Honourable East-India Company at Bombay. Communicated in a Letter to* William Saunders, *M. D. Fellow of the College of Physicians, London, and Physician to Guy's Hospital; and by him to Dr.* Simmons.

*To Dr.* SAUNDERS.

DEAR SIR,

I HAVE intended for some time past to give you a short account of the peculiarities I have observed in the nature and treatment of some of the diseases of this country.

If there be any utility in what I ſhall relate, I know no one to whom I can addreſs myſelf ſo properly as to you, as, I believe, few can make their information upon any medical ſubject ſo generally uſeful.

I mean to confine my remarks chiefly to fevers and to dyſenteries, the two principal and moſt fatal diſtempers of this, in common with all other hot climates.

It will not be neceſſary to deſcribe the ſymptoms of thoſe diſeaſes, as this has been ſo often done already by different authors, particularly by Sir John Pringle, Dr. Hillary, and Dr. Cleghorn.

The fevers of hot climates have commonly been deſcribed under the names of bilious, remitting, yellow, or putrid fevers; but theſe terms are, for the moſt part, ill defined, and ſome of them ſeem to expreſs the ſtage or degree of fever, rather than the kind—Dr. Cleghorn obſerving, probably, the objections to which the more common appellations are liable, conſiders all the fevers of Minorca under the head of tertians. But though he claſſes them in this manner, he, at the ſame time, obſerves the great irregularities to which their paroxyſms are ſubject, how readily they aſſume a more

more continued form, and how commonly they alternate with attacks of dyſentery. When they put on this irregular appearance they exactly conſtitute the bilious fevers of other authors, and it is to theſe fevers, by far the moſt common in this country, to which I mean to confine my remarks.

The ſymptoms of dyſentery are the ſame in all countries; the diſeaſe can therefore require no diſcrimination from me. But it will be neceſſary to make a few ſhort obſervations upon ſome theoretical opinions which have been entertained concerning the nature and cauſes of fevers and dyſenteries, in order that the principles may be underſtood upon which the practice hereafter deſcribed is founded.

The fevers of which we are ſpeaking, and dyſenteries, have always been obſerved to prevail in the ſame ſeaſons; and there is ſuch a general reſemblance of character betwixt them, that both ancient and modern authors have conſidered them as originating from the ſame cauſes. Though they differ much in their opinions reſpecting the nature of thoſe cauſes, yet this one point of a common origin being eſtabliſhed from ſuch united authority, is a ſtep

of ſome importance in aſcertaining the nature of both.

The more ancient phyſicians, obſerving the great diſcharges of bilious matter in thoſe diſeaſes, believed that they originated from redundant or corrupted bile. This opinion was very generally adopted by their ſucceſſors, but it is now ſucceeded by the more laboured, though not more ſatisfactory, theories of modern date.

It would be ſuperfluous for me to give any account of thoſe theories; no one is better acquainted with their fallacy than you are: I will only beg leave to remark, that the total rejection of the ancient doctrine ſeems to be in ſome degree owing to writers in general not having had opportunities to obſerve the fevers and dyſenteries in warm climates, where they are infinitely more common than in Europe.

I am very far, however, from believing that bile alone, either redundant or corrupted, is ſufficient to produce thoſe fatal diſtempers; but it muſt alſo be confeſſed, that the bile cannot be in either of thoſe conditions, unleſs the organ which ſecretes this fluid be to a certain degree diſeaſed: for I hold it to be a fact as clear and demonſtrable as any in phyſic, that whenever a fluid is ſecreted by any gland in the

body

body different in quantity and quality from what is natural, the fault is not ſo much to be looked for in the fluid that is ſecreted, as in the organ that ſecretes it. The fluid may produce much diſorder in the ſyſtem, but the ſource of this diſorder is evidently in the gland.

If therefore it can be made to appear that the ſtate of the liver has ſome connexion with the production of thoſe diſeaſes, it will ſhow that although the ancients did not arrive at the truth, yet they approached towards it.

To illuſtrate this opinion, I ſhall beg leave to enumerate the following arguments:

1. In the fevers and dyſenteries of hot climates, large and ſpontaneous diſcharges of bile frequently happen, commonly to the great relief of the patient.

2. A pain, ſometimes dull, ſometimes acute, is, for the moſt part, felt by preſſing with the hand upon the region of the liver. As the diſeaſe advances this pain increaſes, and often a tumefaction and hardneſs become perceptible in that region. This obſervation is ſtrongly corroborated by Dr. Hillary, in his account of the putrid bilious fever of the iſland of Barbadoes.

"We likewiſe," ſays he, "obſerve, that "the hypochonders, eſpecially the right, and

" the adjoining præcordia, are moſt affected " throughout the whole time of the diſeaſe, " which is the ſeat of the liver and gall blad- " der, inſomuch that Dr. Warren ſays, it " ſeems to be the ſeat and throne of the diſ- " eaſe; and I have always obſerved that the " ſick cannot bear the leaſt preſſure of one's " hand upon the parts where the gall bladder, " and biliary ducts, and liver, are ſituated."

This pain, however, is not conſtantly to be diſcovered, even by the moſt careful examination: this may be owing to the inſenſibility of the liver, or to the diſeaſed part being beyond the reach of preſſure with the hand. But it is not uncommon for the diſeaſe of the liver to ſhow itſelf, in this country, by a fixed pain in the top of the ſhoulder, without any pain being felt in the organ itſelf.

3. In fevers a yellowneſs of the ſkin is often obſerved, as if the patient were afflicted with the jaundice; hence the name of yellow fever, ſo common in the Weſt Indies. But this ſymptom is as often obſerved in dyſentery as in fevers, and, I believe, it can be fairly aſcribed to no other cauſe than to the bile being carried into the circulation in conſequence of the diſeaſed ſtate of the liver.

4. If

4. If there be any reaſon to believe that the liver is affected from the beginning, it will account in the moſt rational manner for the enlargements in the ſide ſo often noticed by authors, after thoſe diſeaſes have continued ſo long as to become chronic.

5. The moſt ſatisfactory way of gaining information concerning the nature of any internal diſeaſe is by diſſection of the dead ſubject.

I have opened a number of bodies, and been preſent at the diſſection of a great number more, of thoſe who have died either of fever or of dyſentery in this iſland, where the caſes of the patients, previouſly to their deaths, were accurately taken, and the appearances on diſſection carefully noted down.—All that I can attempt in this letter is to ſtate, in a general way, the appearances obſerved in thoſe diſſections.

In the caſes both of fever and dyſentery the liver was, with two exceptions, conſtantly found diſeaſed.

In moſt caſes it was much enlarged, ſometimes indurated, but more frequently very ſoft, ſo as to tear upon a ſlight touch.

Commonly an abſceſs had formed in it, ſometimes of great extent, and ſometimes ſo

ſmall as only to be detected by a minute inſpection.

The diameter of the blood veſſels, through the whole ſubſtance of this viſcus, was commonly found much increaſed, and their coats proportionably thickened. They were alſo obſerved to be, for the moſt part, empty.

In two caſes of dyſentery where the patients had coughed up matter for ſome time before their death, a large abſceſs in the liver had made its way through the diaphragm into the lungs.

The gall bladder was ſometimes very much diſtended with yellow ropy bile.

The ſpleen was, in moſt inſtances, much enlarged, its texture looſened, and ſometimes totally deſtroyed; the ſubſtance remaining having no other appearance than that of a dark coagulum of blood. This was particularly the caſe in the two inſtances above mentioned, where no diſeaſe was apparent in the liver.

In ſome inſtances the pancreas was conſiderably enlarged and ſchirrous.

In patients who died of the dyſentery the bowels were conſtantly found much inflamed. In the worſt caſes, mortification had taken place,

place, eſpecially in the rectum and part of the colon.

In dyſenteric patients alſo the meſenteric glands were commonly ſeen enlarged.

A degree of inflammation, more or leſs conſiderable. was uſually obſerved in the inferior portions of the lungs, contiguous to the diaphragm, and was commonly moſt remarkable on the right ſide of the cheſt.

In Dr. Hunter's Treatiſe on the Diſeaſes of the Army in Jamaica there is an account of the diſſections of twenty-three men who died of what is termed the bilious fever, and in every one of thoſe caſes it is ſaid that the liver was more or leſs diſeaſed.

From the whole of this ſtatement, I think it will be admitted, that the liver or ſpleen, or moſt probably both, ſuffer in the courſe of theſe diſeaſes; for from the mutual connexion which ſubſiſts betwixt thoſe organs, it is highly probable that the one cannot be diſeaſed without the ſympathy of the other: and the facts I have mentioned appear to me ſufficiently ſtrong to authorize this conjecture, "that a diſeaſed "ſtate of the liver and ſpleen has an intimate "connexion with the production of fevers and "dyſenteries in hot climates.'

It

It is, no doubt, difficult to underſtand how a diſeaſe of thoſe viſcera ſhould induce the paroxyſms of a fever, nor do I pretend to explain it; but there are many other phenomena of the animal œconomy equally inexplicable. We can ſometimes trace the cauſes of diſeaſes, but it is ſeldom in our power to aſcertain their mode of action.

In the caſe of dyſentery, however, there is not quite ſo much obſcurity.

If it be true that a dyſentery can only ariſe in conſequence of ſome ſtimulating matter being poured into the alimentary canal, and this ſeems to be actually the fact, notwithſtanding what has been ſaid to the contrary *, it is evident this matter can come but from few ſources. It may come from the ſtomach; it may be ſecreted by the veſſels on the internal ſurface of the inteſtines themſelves; or it may come from one or more of thoſe glands whoſe excretory ducts terminate in the duodenum. Of all theſe ſources vitiated bile, from a diſeaſed liver, ſeems the moſt remarkable: this, by continually diſcharging itſelf through the ductus communis

* Dr. Cullen's Firſt Lines of the Practice of Phyſic, Vol. III.

choledochus into the inteſtines, will produce that conſtant irritation, and all thoſe other ſymptoms, which accompany and characterize the dyſentery. Beſides, the bowels being now deprived of healthy bile, which is abſolutely neceſſary for the digeſtion and aſſimilation of our food into chyle, will loſe their natural tone; loſs of appetite and indigeſtion muſt enſue; and the contents of the ſtomach, inſtead of affording nouriſhment to the body, will become a freſh ſource of uneaſineſs and diſorder.

The juſtneſs of theſe obſervations did not eſcape the penetration of Dr. Cullen, who makes it a queſtion, how far the ſtate of the bile may be connected with the production of dyſentery.

Upon exactly ſimilar principles it may be aſſerted, that a diſeaſed pancreas may produce a dyſentery; and, I think, there is great reaſon to believe that it ſometimes does; but probably not ſo often as a diſeaſed liver.

Some authors have thought that obſtructed meſenteric glands are a cauſe of dyſentery, and the appearance of thoſe glands on diſſection would ſeem to countenance this opinion; but I apprehend it is rather an effect than a cauſe of the diſeaſe. The extremities of the lacteals being irritated by the vitiated matter in the inteſtines, will

will produce an obſtruction and inflammation in the glands of the meſentery, as happens with every other lymphatic gland of the body under like circumſtances.

With reſpect to the exciting cauſes of the fevers and dyſenteries I have little to obſerve. Thoſe commonly enumerated are, putrid effluvia, obſtructed perſpiration, intemperance, &c. Theſe, I make no doubt, have conſiderable influence; but theſe diſeaſes are ſo conſtantly prevalent in this country, that they muſt depend on ſome cauſe equally conſtant with themſelves: this I believe to be the heat of the climate.

It is certain that the bile is more abundantly ſecreted, and the liver more frequently diſeaſed, in warm latitudes than in Europe. This remark extends with equal truth to the brute creation; the livers of our domeſtic animals being frequently found after death in a ſtate of ſuppuration.

Beſides, it is an obſervation agreeable to the experience of all authors, that the diſeaſes of which I am ſpeaking, never make their appearance in Europe but in the hot months of the year; hence it is more than probable that the ſtate of the atmoſphere has great influence in producing them.

Moſt

Moſt writers have aſſerted that theſe diſeaſes are of a very contagious nature; Dr. Cullen is ſo ſtrongly prepoſſeſſed with this opinion, in the caſe of dyſentery particularly, that in defining this diſeaſe, he has choſen to make its contagious nature a part of his definition.

I am, however, very doubtful how far this opinion may be well founded; I never knew or heard of an inſtance of either of theſe diſeaſes running through a family in the manner highly contagious diſeaſes commonly do; nor does it by any means appear that the attendants on the ſick are peculiarly liable to be affected with them. As this, however, is a point not always to be eaſily aſcertained, I will not take upon me to ſay that they are not in any caſe, or in any ſituation, contagious. But it may here be obſerved, that this climate does not ſeem favourable either to the production or propagation of infectious diſeaſes. A remarkable inſtance of this we have in the caſe of ſmall pox: theſe commonly prevail here during the cold months of the year, but gradually diſappear as the hot ſeaſon advances.

Much of what I have hitherto ſaid muſt, no doubt, be conſidered as matter of ſpeculation; but in ſpeaking of the practice, I ſhall lay aſide all

all theory, and merely ſtate what I know from my own obſervation, aſſiſted alſo with the experience of others.

At the beginning both of fevers and of dyſenteries, the firſt thing directed is, to evacuate the contents of the alimentary canal by mild remedies, and during their progreſs to obſerve that the bowels are always kept in a ſoluble ſtate. This practice is particularly recommended by Dr. Sydenham and by Sir John Pringle; and coming from ſuch authorities it can require little other recommendation.

After moderate evacuations, if the fever be mild, and eſpecially if it be attended with conſiderable remiſſions, the bark will often be ſufficient to accompliſh a cure.

If, on the contrary, it puts on a more threatening aſpect, or has been of ſome continuance, the bark, though it may be uſed as an auxiliary, ought not alone to be depended on: the medicine which in this caſe has been found, from much experience, moſt certain and efficacious is mercury.

In dyſentery alſo, if the complaint ſhould not yield to ſimilar evacuations, followed by a moderate uſe of opium, the ſame remedy ought to be had recourſe to.

Suppoſing

Suppoſing then, that the uſe of mercury be judged neceſſary, which moſt frequently happens, it may be proper to make a few ſhort obſervations on the manner of uſing it, and the effects it produces in theſe diſeaſes.

1ſt. It has been found, though I do not pretend to explain the fact, that patients in this country generally require a greater quantity of mercury to produce its uſual effects upon the ſyſtem than in Europe.

2dly. As the liver, both in the fevers and dyſenteries, is apt to run very unexpectedly into a ſtate of ſuppuration, it is of much conſequence that the exhibition of the mercury be carried to the neceſſary length as ſoon as poſſible.

The manner, therefore, of uſing mercury in thoſe complaints in the general hoſpital here, is, to rub two drachms of the ſtrong mercurial ointment upon the belly, legs, and thighs of the patient, every night and morning, till it ſenſibly affects the mouth, which commonly happens in three, four, or five days; when the patient will, for the moſt part, find himſelf greatly relieved: and if the ointment be continued for a day or two more, no complaint will remain but a ſore mouth.

If

If this quantity be not ſufficient to affect the mouth ſpeedily, it is either increaſed, or the internal uſe of ſome mild preparation of mercury is joined to the external friction; in this way as much is done in a few days as could be done in a fortnight by following the common method of giving mercury in Europe.

It happens more frequently than might be expected, that it is either very difficult to affect the mouth, or that it cannot be done at all, by the uſe of mercury in any form.

Whether this depends upon a particular diſeaſed condition of the lymphatic ſyſtem, or upon the peculiar conſtitution of the patient, is not eaſy to determine: but upon whatever cauſe it may depend, it is a moſt unfavourable circumſtance; ſo much ſo, that I do not recollect ever to have ſeen a patient recover whoſe mouth could not be touched by the mercury.

I have ſeen the mercurial ointment employed in the moſt free manner in the advanced ſtage of a fever and of a dyſentery, and apparently ſnatch the patient from the grave. It is true I have alſo ſeen it fail: the medicine is by no means infallible; but it ſeems to be by far the moſt efficacious remedy yet diſcovered for the cure of theſe diſeaſes. Upon the whole, it would appear that the

the due action of this remedy is so much connected with the speedy recovery of the patient, that I think it may be stated as a general rule, "that the use of mercury should be "urged with a vigour somewhat proportioned "to the urgency of the complaint."

It would carry me far beyond my purpose to mention the different remedies recommended by authors for the relief of particular symptoms:—probably the use of mercury may reduce them within a smaller compass. I would take the liberty of making only one observation, with respect to the use of opium in the dysentery. This medicine is no doubt very necessary in that complaint, but it is always injurious if carried so far as suddenly to check the flux. Here it may be useful to recollect an old maxim in physic, that "physicians are "not the directors, but the ministers of na-"ture;"—the discharge is to a certain degree a salutary effort, and cannot with safety be altogether restrained.

From the view which we have taken of this disease, it will be evident, that the use of astringents, especially at the beginning, is highly improper. But their use seems to have been

for ſome time paſt rejected by practitioners, though upon different principles *.

Relapſes, both in fevers and dyſenteries, are not uncommon. I believe they are frequently brought on by imprudent expoſure to the ſun, or by ſome irregularities in diet.

So far as my experience goes, in a public hoſpital, relapſes prove often fatal to the patients. But this obſervation does not apply to private practice, where the ſucceſs is much greater.

It appears that a relapſe may often be prevented by giving ſmall and repeated doſes of mercury, till the patient recovers ſufficient ſtrength to take exerciſe.

It would be unneceſſary to ſay any thing of the treatment of fevers, when they aſſume a pure intermittent form, as they generally yield to the uſe of the Bark. When, however, they reſiſt this medicine, I have repeatedly known the combined uſe of bark and mercury produce the moſt beneficial effects.

The practice which I have thus briefly endeavoured to deſcribe, may, I make no doubt, be

* Cullen's Materia Medica, vol. ii. chap. i.

con-

conſidered by many as bold and hazardous; eſpecially by thoſe who believe that mercury putrifies the fluids, and diſſolves the blood. Theſe notions are particularly inculcated by ſome writers on the diſeaſes of warm climates; but ſo far as I have been able to remark, in a very extenſive uſe of this medicine, they ſeem rather to have been formed in the cloſet, than drawn from obſervation. Mercury, in all countries, is a dangerous remedy in the hands of the unſkilful, but may be both ſafe and efficacious when uſed with prudence and judgment.

No man can form a true conception how far the uſe of mercury extends in a warm climate, unleſs he practiſe in it, and will fairly try its effects.

I have ſeen patients labouring under aſthma and the moſt obſtinate coughs, after having uſed in vain every medicine generally recommended in ſuch caſes, at length completely cured by the free uſe of mercury; thus proving in a ſatisfactory manner, that the diſeaſe was ſeated in the liver, and that the affection of the lungs was merely ſymptomatic.

I have only further to remark, that the method of treatment of which I have given you

a very imperfect outline, is by no means new. It was the practice of Doctor Paisley, late physician-general at Madras, who was well known over most parts of India, as a man of the first professional abilities. Mr. Scott has contributed to introduce it into Bombay, and has applied it with great success in a very extensive practice. Nor can I conclude this letter without acknowledging my obligations to Mr. Scott, and to Mr. Stewart, both surgeons belonging to this presidency, for an early acquaintance with the diseases of this country.

You will therefore perceive, that if this mode of treatment be entitled to any praise, I claim no share in it.—I have rather related the improvements of others, than my own.

——— *Quæ non fecimus ipsi,*
*Vix ea nostra voco.*

I am, my dear Sir,

With the greatest respect and regard,

Your ever obliged Servant,

WILLIAM BOAG.

*Bombay,*
*January* 16, 1792.

II. *An*

II. *An Account of the ſucceſsful Treatment of a Caſe in which the Brachial Artery was divided. By* William Adair, *Eſq. Surgeon General to the garriſon of Gibraltar. Communicated in a Letter to* Everard Home, *Eſq. F. R. S. and by him to Dr.* Simmons.

ON the 29th of July, 1792, a Genoeſe, about twenty years of age, by occupation a porter, was, in an affray, ſtabbed by a Portugueſe in ſeveral parts of his body, with a jagged-edged long knife or poignard; but none of the wounds were of any conſequence, excepting one acroſs the Biceps muſcle, juſt above the uſual place of bleeding in the left arm. An empirical practitioner dreſſed the wounds; and obſerving a very conſiderable hæmorrhage from that in the left arm, filled it with lint and flour, and bound it up ſo tight as to ſtop the bleeding; but in doing this he had at the ſame time ſtopped all circulation in the arm below. Mr. Kidſton, ſurgeon's mate of the ſixty-firſt regiment, happened, about two hours after, to ſee the man, and finding the extremity of the limb benumbed, cold, and void of circulation, he removed the bandage, and a torrent of blood

 immediately

immediately guſhed from the wound. He then made a compreſs on the artery below the axilla, by means of a tourniquet, and ſent for me.

It was obvious, that in this caſe the brachial artery was divided, and that conſidering the torpid ſtate of the arm, either amputation, or an operation the ſame as for an aneuriſm, muſt be immediately performed. On account of the poor man's ſituation, having his ſubſiſtence to earn by his labour, I determined upon the latter. Accordingly in preſence of Mr. Patrick, ſurgeon of the ſixty-firſt regiment, and Mr. Kidſton, his mate, (from both of whom I received very great aſſiſtance) I began a piece of very intricate diſſection, and took up all the divided blood-veſſels completely; but in doing this, I think it right to remark, we lay under very great diſadvantages; for the circulation in the arm having been ſuſpended upwards of two hours, it became neceſſary to operate without delay; and we were obliged to operate in a ſmall room, with bad light, occaſioned partly by the badneſs of the candles, and partly by the heat of the weather and the number of perſons that crowded about us, and rendered the air of the room impure. We had no place but the bed to lay

lay the patient upon, and there was hardly ſpace ſufficient for us to move round it. To theſe inconveniences muſt be added another ariſing from the wound itſelf, which had been made with a jagged inſtrument, and penetrated deep into the hollow of the cubit, forming a mangled opening upon the lower edge of the biceps, ſo that notwithſtanding this opening was made free and large, I found it impracticable to ſeparate diſtinctly the blood-veſſels by diſſection. I therefore was obliged to take up by the needle every veſſel from which, upon ſlackening the tourniquet, we ſaw the blood iſſue; and it was not till we had made ſix ligatures, that we ſeemed to be ſecure againſt the danger of hæmorrhage, and in making theſe I have not a doubt that the ſheaths and aponeuroſes of tendons and muſcles, and likewiſe nerves, were included.

From the beginning of the operation to the final dreſſing of the arm, took us up an hour and three quarters. The patient behaved with great firmneſs during the whole of this period. It is now twelve weeks ſince the operation, and the wound is almoſt completely healed. No interruption to the progreſs of the cure has exiſted for a day, and he has had occaſion for no other

medicines than a ſmall quantity of bark, and ſome vitriolic acid, during the whole of the treatment.

I was in continual apprehenſion from the ſeaſon of the year, and the almoſt abſolute certainty of tendinous parts having been taken up by the ligatures, that he would have had a locked jaw; but happily he eſcaped this ſymptom, which in this climate, and at this ſeaſon, has occurred with more frequency, after wounds, than in any other part of the world I have ever been in, and even from the ſlighteſt wounds. I have not been able to aſcertain the ſpecific time (if ſuch there be) after the infliction of a wound, when we may pretty certainly ſay there is no danger of this ſpaſm appearing; nor what is the uſual time of its coming on: but ſhall make it my buſineſs to attend to both theſe points.

*Gibraltar*,
*November* 3, 1792.

III. *An*

III. *An Account of the Effects of Oil of Turpentine in a Case of internal Hæmorrhage. By the same.*

I have lately had an opportunity of proving the efficacy of oil of turpentine in a case of internal hæmorrhage. The patient, Mr. Delamar, of this place, is about forty-eight years of age. He was seized in March last, during a very cool, mild season, with sickness, vomiting, and pain in the lower part of the belly, followed by a discharge, by stool, of not less than a pound of black, coagulated blood, without any appearance of fæces. When I visited him, about three hours after the first stool, he had had two more stools resembling the first, except that the blood voided by the last stool was not coagulated, but frothy and high coloured. His extremities were cold; his pulse, at the wrist, was hardly perceptible; he had a hiccup, and seemed to be in a dying state.

I ordered ten drops of oil of turpentine to be given immediately; and as his stomach, since the attack, had rejected whatever he had taken, I directed the oil to be dissolved with a little

of the yolk of an egg, and diluted with cinnamon water. In this form it was retained; and a ſurgeon of one of the regiments here, kindly undertook to ſit up with him, and ſee the ſame doſe repeated every ſix hours, or oftener, if the hæmorrhage ſhould not abate.

When I viſited the patient the next morning, I found that the diſcharge having diminiſhed after the firſt doſe, the medicine had been repeated only three times, and that there was hardly any blood in a ſtool he had voided that morning. His pulſe was now full, but quick. The medicine was directed to be repeated only twice in twenty-four hours, and the next day it was entirely laid aſide. But on that day (being the third from the attack) as he was coſtive, and had ſymptoms of fever, I thought it right to direct a gentle laxative medicine to open the bowels. This effect it produced, but it brought on bloody ſtools again with almoſt as much violence as at firſt. They were immediately ſtopped, however, by the oil of turpentine given in the ſame doſe and form as before. After this I did not venture to preſcribe for the patient any laxative medicine, by the mouth, for a conſiderable time; but contented myſelf with recommending the occaſional

ſional uſe of clyſters, to obviate coſtiveneſs, till there ſeemed to be no longer any danger of the return of the hæmorrhage.

The patient is now perfectly recovered.

*Gibraltar,*
*November* 3, 1792.

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IV. *A Caſe of Imperforated Anus. By the ſame.*

ON the 7th of Auguſt 1792, I was called to a child of an officer of this garriſon, which had been born thirty hours without having had any evacuation by the anus. Upon examination I found a paſſage of about two inches at the uſual exit of the rectum, but which beyond this was impervious. There was an appearance as if nature had made an attempt at another paſſage; for at the end of the poſterior perinæum, near the os coccygis, was a ſmall ſinus, of about half an inch, in a direction towards the rectum. In both theſe blind paſſages the cuticle was equally ſtrong as on any other part of the body. There could be no heſitation from which of the two we ought to attempt a com-

communication with the inteſtinal canal, and therefore, after examining with a pretty thick bougie, the former and moſt natural of theſe paſſages, I took a middling-ſized trocar, and introduced it with the point within the canula, till it reached the end; then puſhing it beyond the canula, and finding that not ſufficient, I puſhed the trocar forward, till it had completely overcome the reſiſtance. I then left the canula in, and drawing out the trocar, obſerved the point of it tinged with meconium, This latter circumſtance ſeemed to be a very favourable appearance: but after waiting ſome time nothing came away through the canula, nor when this was removed did any thing follow but a few drops of blood. I now introduced a proper-ſized bougie, which was ſuffered to remain for ſome hours; but when this was drawn out, nothing followed but a few drops of blood. A ſponge tent of a proper ſize was alſo puſhed up, and left in for ſeveral hours; but though it extended the paſſage more conſiderably than the bougie had done, no ſtools followed on its being taken out. The parts after this were left at reſt until next day, only a little warm milk was ordered to be thrown up the paſſage; and

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as the child (though its belly was preternaturally full, but not hard, and it had now been fifty-eight hours without any paſſage by ſtool, which in this climate, and in the month of Auguſt, was very unfavourable), ſtill ſeemed ſtrong and hearty, we introduced another pretty thick bougie up the paſſage, and left it there for twenty-four hours. This, when withdrawn was followed by a copious black ſtool, and that was ſucceeded by eight more in the courſe of twelve hours. Next day the evacuations were very frequent, to the amount of ſixteen ſtools, after which they diminiſhed in number, and became of the natural colour. The child now appeared to be going on very well, but ſoon fell off; the ſtools became ſometimes dark, and ſometimes yellow; a feveriſhneſs ſucceeded; the belly continued diſtended till two days before it died, and then became ſmaller. The child lived only fifteen days.

I had no opportunity of examining the body, ſo that the cauſe of death cannot be aſcertained; but the hiſtory of the caſe leads me to conſider it as not immediately connected with the conſequences of the operation. The child might have been defective in other reſpects eſſentially connected

connected with the vital organs. The operation ſucceeded perfectly in giving a paſſage for the contents of the bowels; and ſo far this caſe is deſerving of notice, as it may give ſome information to others who have this operation to perform under ſimilar circumſtances. It proves that although the contents do not immediately follow the inſtrument, nor even the bougie, it is not to diſcourage the ſurgeon from future attempts, as perſevering in the uſe of the bougie may be attended by the wiſhed-for ſucceſs.

*Gibraltar,*
*November* 3, 1792.

V. *Obſervations on the Pathology and Mode of Treatment of Calculi in general, but more particularly of Inteſtinal Calculi; with a Deſcription and Chemical Analyſis of the Inteſtinal Calculi of Horſes. By Mr.* William Gaitſkell, *Surgeon at Rotherhithe. Communicated in a Letter to Mr.* William Babington, *Apothecary to Guy's Hoſpital, and by him to Dr.* Simmons.

*To Mr.* BABINGTON.

DEAR SIR,

IT is with great diffidence I think of offering the following obſervations to the medical reader. Nothing but the importance and curioſity of the ſubject, the erroneous doctrines which have been entertained concerning it, and a deſire of promoting a more accurate inveſtigation of it, could ever have prevailed with me to publiſh them.

I am well aware that much more is neceſſary to complete the enquiry than will be found in the following obſervations; but as my frequent profeſſional avocations will not at preſent allow

allow me to purſue the enquiry more minutely, I truſt this will plead my apology.

I have divided the paper into two ſections. In the firſt I treat of the pathology and mode of treatment of calculi in general, but more particularly of inteſtinal calculi; and in the ſecond I give a chemical analyſis of the inteſtinal calculi of horſes. In the latter of theſe ſections, I may, perhaps, by ſome be thought cenſurable, for having noted the materials of compoſition, without marking more exactly their proportions; but as different ſtones, chemically examined, differ ſomewhat in the quantity of their conſtituent principles, though not in their ſenſible qualities, I have been leſs anxious about critical minuteneſs.

My original deſign was to have made theſe obſervations the ſubject of a ſeparate publication, and to have requeſted leave to inſcribe it to you, as a ſmall, but ſincere, teſtimony of the reſpect and eſteem I have long entertained for you; but ſeveral reaſons, and particularly your friendly advice, have induced me rather to ſolicit a place for it in a work of eſtabliſhed reputation. I therefore beg leave to avail myſelf of your kind offer to tranſmit it to Doctor Simmons, to be inſerted, if he thinks proper, in the Medical Facts and Obſervations. In

that

that caſe I hope this letter will be allowed to appear by way of preface to the paper, that I may have an opportunity of expreſſing publickly the ſincerity with which I am, Dear Sir,

Your obliged Friend,
and humble Servant,

WILLIAM GAITSKELL.

*Rotherhithe,*
*May* 25, 1793.

## SECTION I.

### *Of the Pathology and Mode of Treatment of Calculi in general, but more particularly of Inteſtinal Calculi.*

NATURAL HISTORY informs us that calculi may be found in the ſtomachs and inteſtines of many quadrupeds; in ſome fiſhes, inſects, and worms; and likewiſe in the human body.

From the inteſtinal calculi I ſhall hereafter deſcribe, we may trace their affinity to the laminated ſtones named Bezoars by the ancients, and which ſeem to have been no other than theſe animal concretes*. To prove this more clearly, let us quote Dr.

* Bezoar ſtones were firſt noticed and employed medicinally by Avenzoar, an Arabian phyſician, who flouriſhed about

Dr. Lewis's deſcription of them, as " præternatu-
" ral or morbid concretions formed in the bodies
" of land animals." Of theſe, he obſerves, the oriental is of the ſize of a kidney bean, of a roundiſh or oblong rounded figure, of an even ſmooth ſurface, and of a ſhining olive or dark green colour; which, on being broken, appears compoſed of a number of concentrical coats, of which the inner is ſmooth and gloſſy as the outer; in the middle, he adds, is either a cavity or ſome powdery matter, or ſome ſmall bits of the leaves or ſtalks of plants, or other like ſubſtances *.

This deſcription ſeems correct, except in limiting theſe productions to land animals, for they are ſometimes met with in fiſhes. Therefore, to elucidate this ſubject, I ſhall enumerate the animals that bezoars are moſt frequently found in. Among quadrupeds we may reckon

about the eleventh century; but they were firſt accurately deſcribed by Garcias dal Horto, phyſician to the Portugueſe viceroy of the Indies. They took their name from the Perſian word *Badzcher*, which ſignifies antidote, being conſidered as remedies againſt poiſon. Even at this day they are ſaid to be in great eſteem among the Perſians.

* Lewis's Materia Medica, 4to. 1768. p. 138, 139.

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the horſe, ox, goat, ſtag, the mountain deer of the Alps, the Braſilian monkey, and the porcupine; among fiſhes, the *phyſeter macrocephalus* LINNÆI, or ſpermaceti whale; among inſects the *aſtacus fluviatilis*, or river crayfiſh; among cruſtaceous worms the *concha margaritifera*, or mother of pearl oyſter; and laſtly, mankind.

The Gentleman's Magazine, vol. vii, p. 448, gives an account of a ſtone taken out of the ſtomach of a horſe aged ſeventeen years, the greateſt circumference of which was 28 inches, and the leaſt 25. Its figure was an oblong ſpheroid; its weight 19 pounds avoirdupois.

In the 60th volume of the ſame work, at page 18, we have a deſcription, with a figure, of a cluſtered ſtone, weighing nineteen ounces; and an account of another as big as a penny loaf, like a heap of hardiſh horſe dung, from the inteſtines of a horſe thirty years of age. At page 885, of the ſame volume, four more inteſtinal ſtones are delineated, the firſt of which weighed one pound ten ounces; the ſecond, two pounds nine ounces; the third, eight ounces; and the fourth, ſeven pounds fourteen ounces. In the Philoſophical Tranſactions, vol. 48, we have an account of

 a mare,

a mare, from whoſe body a ſtone was taken that weighed fifteen pounds twelve ounces. And Ruyſch preſerved in his collection two calculi, which, with thirty-four others of different ſizes, had been voided by a horſe in the Emperor's ſtables at Vienna, in the ſpace of ſix weeks. The nucleus of one of theſe ſtones was found to be a grain of barley*.

Mercatus has deſcribed and delineated an oriental concretion of this ſort in the Vatican collection †, preſented by the King of Portugal to Cardinal Alexandrinus, which weighed ſomewhat more than four ounces; and alſo another from an animal of the ſtag kind, brought to Rome by the Jeſuits from Peru, the weight of which was fifty-ſix ounces ‡.

In the monkey theſe concretions are found in the ſtomach, of about the ſize of an hazel

* Vide Frid. Ruyſchii Theſaur. Anatom. ſecund. p. 39, 4to. Amſtel. 1722.

† Mich. Mercati Metallotheca, (Armar. viii. de lapidibus animalibus innatis, cap. i.) folio, Romæ, 1719.

‡ Monardes, in his work, tranſlated by Cluſius, under the title of *Simplicium Medicamentorum ex novo Orbe delatorum Hiſtoria*, has inſerted a letter written to him by a correſpondent in Peru, who deſcribes the pouch, communicating with the ſtomach, in which theſe concretions are formed.

nut, harder than the other kinds, and of a dark greeniſh colour, approaching to black. But in the porcupine, they are ſeated principally in the gall bladder, and are ſimilar to biliary calculi in other animals.

In fiſhes we may adduce ambergris, as a concretion of the ſpermaceti whale. Dr. Swediar, in the ſeventy-third volume of the Philoſophical Tranſactions, gives a ſatisfactory hiſtory of this animal product, and aſſerts, that it is found in the belly of the whale, and only of that particular ſpecies called by Linnæus *phyſeter macrocephalus*. He deſcribes it as being ſituated about ſix or ſeven feet from the anus, and never higher up; which, in all probability, ſays the Doctor, is the inteſtinum cæcum, hitherto erroneouſly conſidered as a peculiar bag for the ſecretion of this ſingular ſubſtance. Intermixed with this are a number of black ſpots, apparently the beaks of the *ſepia octopodia*, which is the natural food of this ſpecies of whale. All whales, it ſeems, which afford this concretion, are found ſickly and emaciated; but healthy whales never produce any *: therefore we may conclude it to be an animal concrete, generated

* See Phil. Tranſ. vol. 81, page 43.

by diſeaſe, and which proves fatal by its mechanical ſtimulus *.

In the inſect we conſider oculi cancrorum to be the ſtony concretion of the cray fiſh: they are thus deſcribed by Doctor Lewis †:—"about "the ſize of peaſe, of a roundiſh ſhape, flat-"ted on one ſide; in colour white; ſome-"times with a reddiſh, and ſometimes with a "blueiſh caſt;—internally of a leafy texture ‡."

In the worm may be inſtanced the pearly concretions of certain oyſters—the *concha margaritifera*. Theſe concretions are of a bright ſemi-tranſparent whiteneſs, and are of two ſorts,

* Cluſius was of opinion, that ambergris was the indigeſtible part of the food collected in the ſtomach of the whale; and Kempfer ſpeaks of it as excrement, and mentions, that the Japaneſe, for this reaſon, call it *kuſura no fuu*, i. e. whales dung. But, I think, from all whales being found unhealthy in which it is diſcovered, and the quantity imported being ſmall compared with the quantity that would every where be to be found were it natural fæces, in thoſe ſeas where the ſpermaceti whale inhabits, we may ſafely conclude that it is a diſeaſed product, ſimilar to ſtones in the inteſtines of horſes, and of other animals.

† Materia Medica, p. 172.

‡ Geoffroy aſſerts that cray-fiſh change their ſtomachs and inteſtines at certain periods; that when the ſtomach is renewed the old one becomes ſubject to the digeſtive proceſs: and that after this proceſs concretions are found in the new ones. —Suite de la Mat. Med. de M. Geoffroy, tome i, p. 338.

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the oriental and occidental. The oriental are of a ſilver hue; the occidental of an opaque white: and they are found on the inſide of the ſhell *.

In the human body we have too many well recorded facts of inteſtinal concretions, and the direful effects they are productive of; ſome of which ſhall now be ſelected.

Lanzoni mentions† the caſe of a woman, in whoſe ſtomach were found ten ſtones, the largeſt weighing an ounce.

Dr. Coe, in his treatiſe on biliary concretions, gives an inſtance of a woman, from whoſe rectum was extracted a concretion, the nucleus of which was a plumb ſtone ‡. In the Edinburgh Medical Eſſays §, we have an account

* As neither crabs eyes nor pearls are found in all cray fiſh or all oyſters, and there is no ſuggeſting any uſe that they can furniſh to the œconomy of theſe animals, we may, perhaps, be juſtified in concluding that they are formed by diſeaſe in their inteſtines. The poſitive confirmation of this hypotheſis may be difficult, but it may in time perhaps be decided, by the obſervation of diligent naturaliſts. See Reaumur's paper on the formation of pearls and ſhells, in the Memoirs of the Academy of Sciences at Paris, for the year 1717.

† Acta Phyſ. Med. Nat. Curioſ. vol. i, p. 117.

‡ Coe on Biliary Concretions, p. 137.

§ Vol. 1. p. 243.

of a ſimilar fact. In this laſt caſe the ball was of an irregular cubical ſhape, and weighed five drachms. In the Eſſays and Obſervations, Phyſical and Literary, is the hiſtory of a boy who had three ſtones extracted from the rectum, the nuclei of which were the ſmall bones of ſheep's trotters *.

The third volume † of the Memoirs of the Royal Academy of Surgery at Paris, contains an account of a woman from whoſe bowels was taken a ſtone weighing two ounces two drachms and a half.

In the Philoſophical Tranſactions, vol. 27, we have an account of a concretion formed upon a plumb ſtone, and retained in the inteſtinum cœcum; and in the London Medical Journal, Vol. 6, p. 355, Mr. Johnſon, of Lancaſter, relates the caſe of a woman who voided, by ſtool, a ball of hardened fæces, weighing three quarters of an ounce, the nucleus of which was alſo a plumb ſtone.

Theſe facts, (and other ſimilar ones might eaſily be collected from books) are ſufficient to ſhow that inteſtinal calculi are not limited to

* Vol. 11. p. 345. † P. 56.

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the quadruped; and that they occur more frequently in the human body than has perhaps been generally ſuſpected.

I ſhall now offer ſome obſervations on the formation and growth of animal ſtones, and on the ſtate of the organs which produce them.

When my mind was firſt occupied in the inveſtigation of this ſubject, it was forcibly impreſſed with a ſeeming conviction of the truth of the prevailing doctrines, that ſtone was a calcareous depoſition from urine, or calcareous earth ſecreted with mucus, which for the formation of ſtone required only a proper nucleus to attract it *. But when I had peruſed the work

* It has been ſuppoſed by the ancients, and by the moſt eminent among the moderns, that urine contains the elements of ſtone, is more or leſs ſaturated with calcareous earth, and prepared to accumulate on any inſoluble body. The juſtly celebrated Dr. Black, Profeſſor of Chemiſtry at Edinburgh, delivers this doctrine. Dr. Monro, Profeſſor of Anatomy there, contends for the ſame; and Dr. Boerhaave, with his learned commentator, Van Swieten, have been of a ſimilar opinion. But when ſtones have been diſcovered where no urine exiſted, their origin has been aſcribed to the ſecre-

work lately publiſhed by Doctor Auſtin on this ſubject, and had repeated ſome of his experiments, I became convinced of the truth of his opinion : therefore, in viewing the origin of ſtone, I ſhall adopt the ſentiments of this ingenious writer, and attempt to prove, that concretions in animals are morbid in their origin, that the urine contributes nothing to their formation, that they are compoſed of a modified mucus, and are not calcareous.

We can hardly believe any organ or organs of an animal body to perform their natural functions, when they become the agents of productions injurious to the ſyſtem; therefore, if glands or glandular membranes ſhould ſo alter the quality of their ſecreting liquors, as to produce an hurtful inſtead of uſeful fluid, we properly nominate it diſeaſe. When the ſalivary glands, under hydrophobic irritation, prepare a poiſonous fluid in place of mild ſaliva;

ſecretion of calcareous matter in combination with mucus, which cryſtallizing on the ſurface of ſome nucleus, formed that incruſtation called ſtone. However, we ſhall ſee that theſe opinions are ill founded, raiſed upon external appearances, and not ſupported by experiment.

or

or the glands of the breaſt a cancerous fluid in place of milk; or the follicles of the urethra an opake venereal mucus in place of what is innoxious; theſe are unnatural actions, and morbid products; which, as each differs ſpecifically from the others, aſſumes ſome diſtinguiſhing character. Upon the ſame principle, that affection of follicular membranes which ſecretes mucus with the property of concretion, may be characteriſed with the epithet *lithic*. The impoſſibility of deſcribing the peculiar mode of action which the living ſolids take on, or their peculiar mode of operation in changing the chemical and ſenſible qualities of their contained juices, is no objection to this reaſoning, while the ſudden alteration in the quality of ſecreted liquors by the application of various irritants, gives ſuch ſtrong confirmation of it. From theſe pathological data we conclude the following to be the conſtruction of ſtone: A mucus is depoſited with the property of coagulating, which invelopes the body that irritated the veſſel to produce it—this, when conſolidated, becomes the nucleus to a new covering, which conſolidating like the former, receives an additional coat; to this is added a fourth, and ſo

on

on *gradatim*, till numerous coats are given to it*. That ſtones are thus generated, and in this way

* This intermitted depoſition of coagulating mucus, ſhows, that the veſſels ſupport their actions for a determined time, and then become ſuſpended. After ſome ſuſpenſion or diminution of action, the proceſs is reſtored again; without this, no increaſe of magnitude could ariſe, or regular laminæ be formed. Sometimes the actions deſtroy themſelves without renewal, in which caſe the ſtone is ſmall, and not coated; and ſometimes the actions, after temporary ſubſiſtence, are deſtroyed by the application of new ſtimulants. With reſpect to the ſubduction of lithic action by new ſtimulants, let us quote the words of Dr. Auſtin: "The "removal of a ſtone by the operation of lithotomy, often "proves an effectual and permanent cure. It would not be "eaſy to account for this, if the origin of the ſtone be re"ferred to the kidnies; and if it be referred to the general "ſtate of the habit, ſuch an effect would be abſolutely un"intelligible. But if the bladder, with the glands and "membranes contiguous to it, be the ſeat of this diſeaſe, "the change induced in theſe parts by lithotomy, will be "ſufficient to account for the cure. For in this operation, "the neck of the bladder, the proſtate gland, and the "lower part of the urethra, are divided; the courſe of "the urine is changed; the ſtone is extracted; and a large "communication made with the open air: thus a long"continued irritation is removed, and a new ſtimulus ap"plied to theſe parts. The effects of this are not more "evident in the ſtone than in other diſeaſes of the urinary "bladder." Auſtin on Stone, p. 76.

augmented,

augmented, appears from their concentrated ſtructure; all ſtones, of whatever ſize, when ſawed through the centre, diſplaying an arrangement of circles, and this with very few exceptions.

That concretions can be formed without the aid of urine, we have ſhown from a variety of facts. The urine can exert no influence in cavities where it has no acceſs, therefore it can contribute nothing to the formation of ſtone in the cavities of the inteſtines, gall bladder, bronchial veſicles, ſalivary ducts, or follicles of the ſkin; yet, all theſe, and many more, have been the ſeats of ſtone, not differing from thoſe diſcovered in the urinary organs.

Let us now examine another opinion, whether there be an acid *ſui generis*, ſecreted from the blood, called the lithic acid of Scheele and Bergman, with the property of coagulating the animal matter it combines with?

Mr. Scheele aſſerts, that all calculi taken from the bladder or kidneys, have this acid in their compoſition *, the remainder being ſalts of the urine and animal earth; but Dr. Auſtin, in his

* The nature of the lithic acid of Scheele will be more particularly noticed in the chemical analyſis of ſtone.

accurate

accurate analyſis of calculi, was unable to trace this acid; even the urinous cruſts of walls, ſelected for the purpoſe, and ſublimed in a retort, were not able to afford it him: therefore, he concludes, that it only appears in ſome calculi, is deficient in others, and not neceſſary to the formation of any.

An anonymous but ingenious author, in the year 1787, publiſhed a work in confirmation of the univerſality of this acid, entitled, "A Treatiſe upon Gout and upon Gravel, in "which the Sources of each are inveſtigated," and he attempts to prove, that the lithic acid is always preſent in the ſyſtem; that it is in combination with animal earth; and can be precipitated from this earth in a concrete ſtate, by the introduction of any other acids, whether mineral, vegetable, or aërial. This writer goes farther, and aſſerts, that the animal earth is ſometimes ſuperſaturated with it, in which caſe the acid will be precipitated ſpontaneouſly; that conveyed through the kidnies it forms gravel in the bladder; or if detained in the blood-veſſels, gout. The following are his words: "A precipitation of the concreting acid in the "fluids is attended with prejudice to other "parts of the ſyſtem, as well as to the urinary

" paſſages. As ſoon as the acid has been de-
" tached from the ſubſtance with which it was
" combined, it becomes a ſpecies of matter to
" the action of which the body is unaccuſ-
" tomed; and when the redundancy is very
" conſiderable, a depoſition of the particles
" will take place in the blood-veſſels, ſo as to
" give an interruption to the freedom of cir-
" culation. In conſequence of this interrup-
" tion, there frequently ariſes a peculiar affec-
" tion of the inflammatory kind, and that af-
" fection is gout *."

If this hypotheſis were juſt, I ſhould ſuſpect, that in tropical climates, where acids are freely employed, gout and ſtone would be frequent occurrences; but experience ſhows us quite the reverſe; for in thoſe climates where the natives ſubſiſt principally upon vegetables and fruits, theſe diſeaſes are rare to be met with †.

More-

* See pages 63 and 64 of the work here referred to.

† Dr. Moſeley mentions the ſtone in warm climates as a very uncommon diſeaſe, and relates the remarkable circumſtance of the benefit of changing the climate in this affection. It is the caſe of an officer of the 79th regiment, who had been greatly afflicted with the ſtone in England; but by going to Jamaica, and reſiding there three years, the diſeaſe

gradually

Moreover, in northern climates, where both theſe diſeaſes are prevalent, acids are moſt ſparingly employed; while animal food, which is powerfully alkaleſcent, is liberally uſed, without proving an antidote to either. Beſides, many people have been martyrs to arthritic affections without any concretions being formed in their bodies; and when they be formed, it is not experimentally proved, that the acid of Scheele makes part of this compound *.

I have

gradually diminiſhed, and entirely left him. The ſtone was ſo large, and the diſeaſe ſo violent in England, that, on examination, Mr. Pott recommended the extracting it by lithotomy, to which the officer conſented, but which operation was fortunately avoided by his being ſuddenly obliged to join his regiment.

* Mr. Watſon, in his paper on the diſſection of a gentleman who died of the gout, draws the following concluſions on arthritis, and its concretions:

" Is it not remarkable," ſays Mr. Watſon, " where we " had ſo much of the diſtemper, that there ſhould have " been no marks of it in any of the hollow viſcera; neither " in the kidnies, liver, ſpleen, or pancreas?

" It has been, I believe, a pretty common opinion, that " thoſe who have gouty concretions in their joints, are very " liable to the ſtone in the bladder and kidnies; as if the " one diſeaſe were generally productive of the other.

" Is not this pronouncing rather too much? For of all " the patients cut in our hoſpitals, men, women, and chil-

" dren,

I have repeated the author's experiments of precipitating ſome cryſtalline particles from urine (called the lithic or concreting acid) by means of the muriatic acid, and have uniformly ſucceeded. The vitriolic and nitrous acids produce the ſame precipitation, with ſome little difference in colour; that by the muriatic being orange coloured, while the other two are of a

" dren, how few do we meet with that have even the ſlighteſt " indication of gout about them?

" Both the gout and the ſtone are morbid ſecretions, and " may poſſibly exiſt together in one and the ſame ſubject; " but differ eſſentially in their material principles, and " have very different tendencies. The calculous matter is " formed in the urinary paſſages—the gouty depoſits itſelf " generally on bones, cartilages, membranes, and lymphatic " glands. The gouty ſeems to be a kind of earth, different " from that which generally forms a ſtone in the urinary " bladder, for it never appears lamellated, or to have any " kind of nucleus, but is white, ſoft, and uniform through- " out: it may be diſſolved, and being ground down by the " motion of a joint, readily mixes with the ſynovia, form- " ing a ſmooth creamy fluid.

" The gouty earth is then a kind of greaſy bole, which " may eaſily be made to mix with oil and water, which in " general the calculous cannot be made to do; ſo that in " every reſpect, in colour, form, and conſiſtence, it ſeems " to differ eſſentially from that which lays the foundation, " and cauſes the increaſe of the ſtone in the bladder."— Med. Communications, vol. 1. art. 3.

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pale yellow. With the acetous acid I have alſo ſucceeded.

The moſt healthy urine contains this particular powder, or concreting acid, as it is called, in ſolution, which may be precipitated in the quantity of about half a grain from ſix ounces of urine, in the ſpace of twenty-four hours, by thirty drops of either of the concentrated mineral acids. My ſolution of this powder in the nitrous acid has not furniſhed the phænomena deſcribed by Scheele as peculiarly characteriſtic of lithic acid, viz. a deliqueſcent red maſs, communicating its colour to linen: therefore my concluſion is, that whether it be lithic acid, or ſome other acid united with animal mucilage, it may contribute a part to the compound of concretions in the urinary bladder, but ſeems no way neceſſary to the act of concretion, as theſe ſubſtances can be perfected without it, and are frequently ſeated where the urine can have no influence in their production.

When foreign bodies obtain admiſſion into the bladder, as bougies, catheters, &c. an incruſtation is obſerved to take place; but this incruſtation is not lithic cryſtals, but follicular mucus. The follicles become ſtimulated to more copious ſecretion. This ſecretion is not natural

natural mucus, but mucus changed in its properties *. The change takes place where the ſtimulus is applied, and becomes limited or extended, according to the diatheſis of the part, and morbid irritability of the bladder. Sometimes the whole internal membrane of this muſcular cavity is covered with a ſtony cruſt, and ſometimes only a ſmall portion of it partakes of the affection.

I have attempted the formation of artificial calculi, by ſuſpending ſomething inſoluble in urine; but have never been able to effect it.

* Van Helmont was of opinion, that a coagulating principle was derived from the urine, and was peculiar to the human urine alone; this coagulating principle, however, is not reſident in the urine, but in combination with mucus.

We need not be ſurpriſed at the veſſels of animals ſecreting fluids with the property of coagulating, when we ſee vegetables, as the *arundo bambos* of Linnæus, produce concretions ſimilar to flint. It has been lately proved by chemical analyſis, that the Tabaſher, found in the joints of the female bamboo, and ſo accurately deſcribed by Dr. Ruſſel in the 80th volume of the Philoſophical Tranſactions, is truly ſiliceous. And in Dr. Pitcairn's hot-houſe at Iſlington, there was lately a bamboo, containing a ſiliceous pebble in the joint of it, formed by the juice ſecreted from its veſſels.—See Phil. Tranſ. vol. 80, 81.

A piece of ſlate pencil, appended to a ſtring, was ſteeped in a phial of urine; the urine, to prevent decompoſition by putrefaction, as well as to correſpond more exactly with what ought to take place in the bladder, was renewed three times a day for a month; at the expiration of which no incruſtation had taken place. This being repeated, and the time of ſuſpenſion extended, was followed with ſimilar conſequences: therefore I conclude, that the following aſſertion of Baron Van Swieten is probably conjecture without proof: "If the ſmalleſt quill be dipped in "healthy urine freſh made, it acquires a cruſt "of very ſoft ſand, which adheres to it; and "when freſh urine is again poured on it, "increaſes in quantity. Thus the ſtone may "be generated out of the body, namely, when "another ſolid body is put into the urine; "to which, as to a baſis, the elements of "the ſtone are collected, and adhere. Whence "the material cauſe of the ſtone exiſts even in "the moſt wholeſome and ſound fluids of the "body, but an indiſſoluble ſubſtance, exiſting "in ſome particular place in the body, affords "the occaſional cauſe, attracting to itſelf the "elements of the ſtone, even in perſons in

"whom

" whom no propenſity to the ſtone was ever " obſerved *."

But what the urine of a calculous patient may contribute to the augmentation of ſtone in the bladder, I have never had an opportunity to experience—that ſomething may be added, we have the authority of Doctor Auſtin for: he took two ſtones of equal ſize—one was placed in mucus from the bladder of a calculous patient, the other in urine decanted from this mucus, and ten times as much in quantity. In the latter it received ſome augmentation—in the former conſiderably more; and in every reſpect ſimilar to what the patient had diſcharged from his bladder †.

Having now adduced many facts in ſupport of my opinion, that concretions may be formed in animals without the aid of urine, that they are morbid in their origin, and compoſed of a coagulating mucus, I ſhall proceed, in the next place to conſider what may be the ſymptoms they are fitted to produce, and the remedies adapted to relieve them.

* Van Swieten's Comment. vol. 16 of the Engliſh Tranſl. 8vo. Lond. p. 113.

† Auſtin on the Stone, p. 9.

WERE this ſubject to be diſcuſſed fully, it would lead to a wide field of enquiry; I ſhall therefore confine myſelf to the following points of view—the preſence of ſtones in the alimentary canal, their effects on the ſyſtem, and the particular modes of relief in ſuch caſes. My pathology of the origin of ſtones has been more extenſive than this, from an hypotheſis of its being one ſpecies of action, and one ſpecies of product; but my pathology of ſymptoms will be more limited, as every different ſituation has different ſymptoms, and requires ſome variation of treatment.

As my ſpecimens were extracted from horſes, my intention was, to have treated of the ſymptoms produced in this ſpecies of animal alone; but want of information excludes this attempt, and obliges me to conſider them in man, and apply them analogically to the quadruped. This application will probably not be conſidered as improper, when we reflect, that many diſeaſes in the horſe quadruped have the ſame ſource, progreſs, and termination, as in the human body; among which may be

be enumerated, that which I propoſe to deſcribe, the ſtone colic, or *colica calculoſa* of Doctor Cullen. It is thus defined by that late ſenſible and ingenious noſologiſt, " dolor abdominis, " præcipue circa umbilicum torquens; vomi- " tus; alvus adſtricta; cum duritie in quadam " parte abdominis fixa; calculis quondam " per anum dejectis." Syn. Noſol. Meth. Gen. 59, Spec. 7.

That this definition is accurate and comprehenſive, the following caſes will illuſtrate.

Doctor Monro, profeſſor of anatomy at Edinburgh, was conſulted in the caſe of a gentleman, who had a hard tumour under the ribs on the left ſide. It had been taken for a diſeaſed ſpleen; was attended with pain, and with many grievous ſymptoms. The Doctor aſſerted the diſeaſe to be an inteſtinal ſtone, for which he ordered the patient oily purgatives, linſeed tea, ſolutions of ſoap, and change of poſture. The ſtone removed, and got into the zygmoid flexure of the colon, where it was detained, and proved fatal. Here was the " durities in quadam parte " abdominis fixa."

Doctor Coe relates the caſe of a " woman, " who was thought to be afflicted with a ner- " vous colick, and made uſe of medicines

" proper for that diſorder, from which ſhe " reaped ſome benefit. The ſymptoms after- " wards changing, it was judged that a ſtone " was paſſing from the kidnies to the bladder, " which diagnoſis ſeemed to be confirmed by " this circumſtance, that after a few days ſhe " found relief, but alſo felt a weight about the " lower part of her belly. After ſome inter- " val of time, ſhe was ſeized with a ſudden " violent inclination to go to ſtool, and the ſen- " ſation of weight increaſed very much; at the " ſame time ſhe felt a violent pain in the mid- " dle of the gut rectum; prodigious, but uſe- " leſs efforts to go to ſtool, next followed, at- " tended with cold ſweats and faintings. She " felt an hard body in the gut rectum, which " catching hold of, and at the ſame time ſtrain- " ing with all her force, it at length came " away with the ſtool, and being examined " by a phyſician preſent, was found to be a " ſtone of the inteſtinal kind, containing in its " centre, for a nucleus, a ſmall biliary ſtone, " round which the other calculous matter had " grown *."

* Coe on biliary concretions, p. 37.

The

The ſubject of the caſe I have already referred to in the Edinburgh Medical Eſſays, vol. i. p. 243, and which I am induced to quote here more at large, was a girl, twelve years of age, who had been afflicted for ſix years with moſt acute pains in her belly, which returned by fits with extreme violence, and were increaſed from the uſe of acids, or any thing that was ſour, or hard of digeſtion. Theſe pains uſed to abate if the body were naturally open, or made ſo by means of laxative medicines, or clyſters. At length ſhe was ſeized with a more excruciating fit of her diſorder than ſhe had hitherto experienced, attended with violent retchings and an obſtinate coſtiveneſs. Dr. Simſon, who relates the caſe, being called in, tried many things without ſucceſs, ſo that for almoſt three weeks together the patient was in perpetual torment, and from pain and want of ſleep and nouriſhment, became totally emaciated; though before a healthy freſh-complexioned girl. At length, when a cure of ſo obſtinate a diſeaſe was almoſt deſpaired of, ſhe began to vomit bile of a deep yellowiſh colour; ſhe was adviſed to drink plentifully of warm water, and frequently; which ſhe readily did. After having vomited ſix or ſeven times, ſhe had a plentiful ſtool, and felt

an

an hard ſubſtance paſs through the anus, which, upon examination, proved to be a ſtone of an irregular cubical figure, four inches in circumference, and which weighed five drachms. In the centre was a plumb ſtone, to which the calculous matter had concreted in layers.

This caſe, and the preceding one from Coe, comprehend both the genus *colica*, and its particular ſpecies *calculoſa*. But the ſpecies is not completely defined, as there is a want of the "durities in quadam parte abdominis fixa," yet it is very well characterized, by the "calculis per anum dejectis." Therefore we have the ſpecific diſtinction of colic as complete as the nature of the caſe will admit; for in no one inſtance are the characters of diſeaſe ſo fully united, as to diſplay themſelves in every patient *.

Other animals become great ſufferers from the mechanical irritation of calculous concretions

* Dr. Cullen has reduced the number of his ſpecies of colic as much as poſſible, and in this he ſeems to be right; but when he aſſerts that his ſeventh ſpecies, or colica calculoſa, admits of no difference of treatment from the calloſa and ſtercorea, in this I beg leave to diſſent from him, becauſe the ſpecies in queſtion requires all the treatment competent to the other two, and ſome treatment peculiar to itſelf.

in

in the inteſtines, particularly when of large ſize, and the animal incapable of diſcharging them. Thus whales, whoſe inteſtines contain ambergris, are always found ſickly and emaciated *; and horſes, whoſe inteſtines contain large ſtones, are often found to die of enteritis †. As mechanical irritation, long continued, may deſtroy life, without previous inflammation, and as this ſeems to happen frequently to the whale ‡, ſometimes to the horſe, and alſo to the human ſubject, the following intereſting narrative of its effects upon a ſhark, is ſelected by way of illuſtration.—" Some fiſhermen, fiſhing in the " river Thames, near Poplar, with much dif- " ficulty drew into their boat a ſhark, yet " alive, but apparently very ſickly; it was taken " aſhore, and being opened, in its belly were " found a ſiver watch, a metal chain, and a " cornelian ſeal, together with ſeveral ſmall

* See Philoſophical Tranſactions, vol. 81, where there is an account of 362 ounces of ambergris, taken out of the bowels of a female ſpermaceti whale; the animal was old, and much emaciated.

† Gent. Magazine, vol. 60, p. 18, 895.

‡ The phyſeter macrocephalus Linnæi, is the only ſpecies of whale in which ambergris is found, and which is therefore the ſubject of this diſeaſe.

" pieces

" pieces of gold lace, ſuppoſed to have be-
" longed to ſome young gentleman, who was
" unfortunate enough to fall overboard, but
" that the other parts had either been digeſted,
" or otherwiſe voided, but the watch and gold
" lace not being able to paſs through it, the
" fiſh had thereby become ſickly, and would
" in all probability very ſoon have died *."

The ſtomach and inteſtines of moſt animals ſeem endowed with ſuch exquiſite ſenſibility, and ſuch general influence on all the other functions of the ſyſtem, that we need not wonder at theſe miſchiefs—and the caſes we have ſelected ſhow, that the human ſubject, horſe quadruped, and a certain ſpecies of whale fiſh, are the moſt frequent objects of it; therefore it behoves the medical practitioner to diſcriminate the preſence of inteſtinal calculi in the human body, while the veterinary practitioner diſcriminates their preſence in the quadruped.

Horſes are known to be ſometimes attacked with ſevere colicky affections; and if, during a paroxyſm, ſome concretions ſhould be evacuated with their excrement, the diſeaſe be-

* Dodſley's Annual Regiſter, chronicle part, page 227, year 1787.

comes

comes evident, and juſtifies the idea of unevacuated concretions being the cauſe of it. When ſmall, they are ſeldom productive of uneaſineſs, being for the moſt part rejected with the fæces; but when large, collected in numbers, detained in the ſtomach, inteſtinum cœcum, or zygmoid flexure of the colon, the parts become incapable of relief, and art muſt be called in to afford it.

In contributing this relief, let us take nature for our guide, and purſue the path ſhe ſo wiſely points out. We perceive the ſtomach and inteſtines of the human ſubject rouſed by nature to evacuate indigeſtible ſubſtances, as ſoon as they become hurtful by their preſence; therefore, when the huſks of grapes, plumbs, currants, the ſtones of any of theſe fruits, or marbles, dumps, pieces of money, or other inſoluble bodies, are received into theſe cavities, they ſoon become ſtimulated to reject them—this induces us, when the powers of nature prove inadequate, to employ remedies adapted to accompliſh it; and theſe remedies are purgatives: therefore, by analogy we infer, the ſame applications to be proper in the colica calculoſa of horſes. With the adminiſtration of purgatives to horſes in this diſeaſe, it will be adviſable

adviſable to combine diluents of the mucilaginous or oily kind, both given by the mouth, and injected by the anus.—Beſides, it will be prudent, if tenſion of the abdomen, and unabating pain be preſent, to let copious bleeding be premiſed. The diluents will be of great utility, both in a mechanical and chemical view—for by their bulk they will tend to propel the concretions toward the anus, and by their chemical operation on the mucus which always ſurrounds theſe concretions, they will looſen their attachment to the inteſtine, and in this way facilitate their expulſion*. The purgatives to be made choice of, may be ſoap and aloes, calomel and jalap, or glauber's ſalt largely diluted, interpoſing an opiate to diminiſh the conſtrictions, if inflammation ſhould not prohibit it.

Should theſe remedies fail in their effect, and no ſymptoms of actual inflammation be preſent,

* Diluents ſhould always be largely employed.—They ſhould be thrown in to the quantity of ſome gallons by the anus, and an infuſion of oatmeal, or bran tea, will be very ſuitable for this purpoſe. To theſe may be added ſome culinary ſalt, or a ſolution of ſoap, to promote the periſtaltic motion of the inteſtines.

but the animal continue to languiſh *, two other modes may be adopted—either the extirpation of the ſtone by mechanical means, or its ſolution in the body by ſolvents.

The mechanical means may be fourfold—dilution, exciſion, the hand, and forceps. The firſt has been already ſpoken of; the ſecond muſt be extremely hazardous, unleſs performed on the verge of the anus; the third and fourth can only be practicable when the ſtone gets into the rectum, and then they may be employed with advantage. Hardened horſe dung in the dry belly ache has often been extracted by the hand of the farrier, when the gut was incapable of expelling it; the ſame has been effected in the human body: I have given aſſiſtance with the hand and ſcoop, when the patient has been in the greateſt diſtreſs, and the gut ſo weakened by diſtention, that the moſt violent ſtrainings were

* Van Swieten mentions that whole oats are ſometimes the nuclei of concretions in horſes, and aſſerts, as a well-known fact, that grooms mix ſtraw cut ſmall with the oats which they give their horſes, that thoſe animals may be made to chew the oats, which otherwiſe they would ſwallow whole: without this precaution, theſe animals are frequently obſerved to languiſh and decay. See his Commentaries, Sect. 1414.

unable

unable to procure relief. Clyſters were in this caſe ineffectual, being inſtantly returned upon injection; however, in every inſtance, they merit trial and repetition; for, if hardened excrement be the cauſe, they may ſoften and divide it; if calculus, they may ſtimulate the inteſtine to expel it.

Previouſly to the introduction of the hand, warm oil ſhould be thrown up, and the hand well lubricated with the ſame; this will allay irritation, and prepare the parts for the eaſy expulſion of the ſubſtance.

The caſe related in the Eſſays and Obſervations, phyſical and literary, and which I have likewiſe referred to in a former page of this paper, was that of a boy who, "after eating "ſheep's and lamb's trotters greedily, and "ſwallowing ſome of the ſmall bones, lan-"guiſhed in a ſhocking manner for ſix years, "being afflicted during the whole of that time "with frequent and violent pains in his bowels, "till at length three ſtony balls being ex-"tracted from the anus with a pair of forceps, "and two others being voided by ſtool, he got "rid of all his complaints, and in a ſhort time "recovered his health and ſtrength. Upon

"breaking

" breaking two of theſe ſtones, a ſmall flat " bone was found to be the nucleus *."

When the ſtone exhibits no viſible mark of its preſence, either by external protuberance, detention in the rectum, or expulſion of ſmall ones, but yet, from the frequent returns of colic, conſtipation of the bowels, and abdominal diſtention, irregular fever, and daily emaciation, there is reaſon to ſuſpect its exiſtence; after trying the power of purgatives, we ſhould aim at its ſolution by ſuitable remedies. †.

The action of ſolvents is two fold; they either act on the ſurface of the ſtone directly as menſtrua, cauſing it to waſte, and be evacuated, in every cavity where they have acceſs; or they act on the membranes which generate it, diminiſhing the lithic irritation, and ſometimes totally deſtroying it. In fact, if this claſs of

* In the third volume of the Memoirs of the Academy of Surgery at Paris, p. 56, is an account of a ſtone weighing two ounces two drachms and a half, which being too large to be extracted by the forceps, required ſeveral inciſions previouſly to be made in the anus.

† This attempt at ſolution points out the neceſſity of diſtinguiſhing the calculous colic, as it haraſſes for years before it deſtroys, and may chance to be relieved by ſuitable menſtrua.

remedies can prove uſeful, and in ſome inſtances they have ſhewn themſelves ſo, after paſſing the whole round of circulation, previouſly to the exertion of their powers, how much more may we expect from them, when employed with concentrated influence, on calculi ſeated in the inteſtines?

Theſe antilithics and ſolvents are cauſtic fixed alkali, cauſtic mineral alkali, lime water, ſoap, beards of leeks, and uva urſi. The four firſt, are properly ſolvents, though they ſometimes act on the membranes. The two laſt, are more properly antilithics, as they act primarily on the membranes, while their chemical action is unknown.

Before we employ any of the alkalies as ſolvents, it will be right to adopt the rule of Mr. Lane, who recommends, if any ſtones be evacuated, to try the power of chemical menſtrua, prior to the internal exhibition of them; for this gentleman found, that different ſtones were differently acted on; and that different laminæ of the ſame ſtone were differently affected by the ſame agent *.

* See the experiments of Mr. Lane in the Philoſophical Tranſactions, Vol. LXXXI, and in the Medical Facts and Obſervations, Vol. III.

Doctor

Doctor Auſtin obſerves*, that "if we con-
"ſult authors on the effects of alkaline ſub-
"ſtances and lime water in this diſeaſe, we
"ſhall find, that they ſometimes afford relief
"to the painful ſymptoms of the ſtone, without
"effecting a ſolution of it; that ſometimes
"they radically cure the diſorder, by diſſolving
"the ſtone, and removing the diſpoſition to
"generate ſtone; and that at other times they
"are attended with no beneficial effects."

The ſame author quotes from Dr. Whytt, the facts reſpecting the ſolvent powers of lime water and ſoap, in the caſe of the Right Rev. Dr. Newcome, Lord Biſhop of Landaff. This prelate, while drinking two Engliſh quarts of lime water daily, for the cure of the ſtone in the bladder, poured his urine every morning and evening upon a piece of human calculus, weighing thirty-one grains; by which in the ſpace of four months it was reduced to three pieces, weighing in all only ſix grains. Upon one of theſe pieces, weighing 2. 31 grains, he cauſed to be daily poured, for two months, the freſh urine of a perſon who drank no lime water; at the end of which time, the piece was

* Auſtin on the Stone, p. 85, 90.

found to weigh 2. 56 grains, having increaſed in weight a quarter of a grain. This ſame piece being afterward ſteeped in the Biſhop's urine (who continued to drink lime water as above) from June 24th to July 9th, was in thoſe few days quite crumbled into powder *.

" Since this experiment," obſerves Dr. Whytt, " ſhews, beyond diſpute, that lime water, " unaſſiſted by ſoap, can communicate to the " urine a power of diſſolving the ſtone out of " the body, it can ſcarcely be doubted, that it " muſt have the like effect on it when lodged " in the bladder. And that the diſſolution of " the ſtone in the bladder has been completed " by ſoap alone, appeared evidently in the caſe " of the Rev. Mr. Matthew Simſon, Miniſter " of Pancaitland, near Edinburgh ; an account " of which will ſoon be made public by Doctor " Auſtin, who opened his body after death. " Mr. Simſon had, from 1730, been afflicted " in a leſs or greater degree with the ſymptoms

* The perſon who tried the ſolvent powers of his urine upon this calculus, without drinking lime water, ſhould have taken the ſame bulk of pure ſoft water, and then marked its effects; probably the ſolution might have been equally well effected as by the Biſhop's urine, who had drank the lime water, as pure water ſhows ſome degree of action on calculus.

" of a ſtone in the bladder, and in November " 1735, was ſounded by Doctor Drummond " of Perth, and Mr. Balderſton, Surgeon, in " Edinburgh; by whom a ſtone was not only " plainly felt, but alſo by the patient himſelf. " In February 1737 he began to take ſoap, and " after 1743, never had any graveliſh ſymp- " toms. He died in May 1756, and when his " bladder was looked into, there was neither " ſtone nor gravel found in it *."

Now ſuch facts as theſe concerning the power of lithic menſtrua, upon ſtones moſt incommodiouſly ſituated for their action, ſhould flatter us with the moſt pleaſing expectations, and induce us to preſcribe them in caſes where their influence may be more powerful, as in the colica calculoſa of horſes.

In the exhibition of theſe ſolvents to horſes, the cauſtic vegetable alkali, or lime water, may be given in the form of a maſh, but if ſoap is preferred, it may be conveniently given in balls, moderately ſoftened. But among the claſs of ſolvents, the moſt active is the cauſtic mineral alkali, as will be ſhewn under the chemical analyſis, therefore, this ſeems the moſt eligible to

* See Whytt's Works, 4to, Edin. 1768, p. 447.

be made choice of. It may be incorporated with bran into a maſh, or with oil into a ſoap; and dilution ſhould be employed to aſſiſt it *.

The two laſt remedies I propoſe to make mention of may rather be named antilithics

* There are two medicines of very great repute unnoticed in my claſs of lithontriptics, I mean, the aerial acid and the aerial mephitic alkali; the firſt recommended by Drs. Hulme and Dobſon, the latter by Dr. Falconer—They are both medicines of great value, and highly deſerving of notice; but as I have not been able to aſcertain the lithontriptic powers of theſe remedies ſufficiently to ſpeak decidedly concerning them, particularly the latter, I have purpoſely omitted the conſideration of them. But for thoſe who may wiſh to make trial of the latter, or mephitic alkaline water, the following is the mode of preparing it: take an ounce, troy weight, of dry ſalt of tartar, put it into an open earthen veſſel, pour on it ſomewhat more than two quarts of the ſofteſt water that can be procured, and ſtir them well together; after ſtanding twenty-four hours, the clear part is carefully to be poured off, free from any indiſſoluble reſiduum that may remain, and put into the middle part of one of the glaſs machines for impregnating water with fixed air, and expoſed to a ſtream of that fluid. After the water has remained in that ſituation twenty-four hours, it will be fit for uſe, and ſhould then be carefully bottled off into clear bottles, well corked, and ſet with the bottom upwards, in a cool place. Half a pint of this has been taken three times a day in calculous caſes without diſagreeing with the ſtomach.

than

than ſolvents; theſe remedies are the beards of leeks and uva urſi.

The beards of leeks have been a long while known among paupers, and ſeveral of them have informed me, upon enquiry, that they have experienced great relief from their uſe—ſome have aſſured me of their being cured by them, after having had the ſtone for years; and others have had their pains mitigated, and the ſtones evacuated with eaſe, when every thing elſe had been uſeleſs *. I have had ſome little experience of their powers in moderating the ſufferings of patients, by checking the ſeverity of paroxyſms, and leſſening the frequency of returns, therefore, am induced to aſſent to theſe aſſertions. A gentleman of veracity, and who had for years been afflicted with the ſtone, and was adviſed to the operation of lithotomy, aſſures me, that an infuſion of the beards of leeks, recommended to him by Mr. Cline, has afforded him the moſt eſſential relief †. It has enabled

* A handful of the beards of leeks may be infuſed in a pint of hot water, and the whole of this quantity taken daily.

† Two years have elapſed ſince this gentleman, Mr. Briſon, began to take the remedy, and the paroxyſms, which

enabled him to uſe exerciſe on horſeback, or in a carriage, without the ſmalleſt inconvenience; while previouſly to this, he was unable to uſe either, without bloody water, mucous diſcharges, teneſmus, and other diſtreſſing ſymptoms.

I have been lately informed, that the beards of leeks have been introduced into our hoſpitals, and that many trials have been made with them, and much relief experienced from them; if ſucceeding trials ſhould confirm this, they will be a valuable medicine in lithiaſis, whether inteſtinal, veſicular, or renal. In horſes I ſhould imagine the doſe to be limited from two to four quarts of infuſion; while a pint ſeems ſufficient in the human ſubject.

The next antilithic is uva urſi, on the action of which Dr. Cullen, who claſſes it among the aſtringents, has the following obſervations:

" In mentioning the general effects of aſtrin-
" gents, I muſt not omit their ſingular power of
" relieving the ſymptoms which attend the pre-
" ſence of a calculus in the urinary paſſages *."

before were frequent and ſevere, are now long in their intervals, and too inconſiderable to be noticed.

* We may ſafely infer their power when calculus is ſeated in other paſſages.

" Among

" Among the diſſertations of De Heucher,
" formerly a Profeſſor at Wittemburg, there
" is one under this title, *Calculus per ad-*
" *ſtringentia pellendus.* In this he ſhows,
" that almoſt at all times, and by the moſt
" eminent phyſicians, aſtringents have been
" employed in calculous caſes. He is, indeed,
" intent upon ſhewing, that aſtringents have
" been employed in promoting the excretion
" of calculi; but I preſume that, in the caſes
" in which thoſe remedies appeared ſucceſsful,
" the calculous matter was only ſuppoſed to be
" evacuated, becauſe the patient was relieved
" from the ſymptoms that he formerly laboured
" under. But we now know that theſe ſymp-
" toms may be relieved without the ſtones
" having been diſſolved or evacuated. A proof
" of this appears in the uſe of the leaves of
" the uva urſi, which not only from the expe-
" riments of the late Mr. De Haen, but alſo
" from my own, I have found to be
" often powerful in relieving the ſymptoms of
" calculus. This plant is manifeſtly a powerful
" aſtringent; and in what manner this and
" other aſtringents are uſeful in the caſes men-
" tioned, may be difficult to explain; but I
" ſhall offer a conjecture on this ſubject: I ſup-

" poſe

" poſe their effect to depend upon their abſorbing " acid in the ſtomach. Their powerful attrac- " tion of acid we have mentioned above; and " that thereby they may be uſeful in calculous " caſes, is rendered probable by this, that the " medicines which of late have been found the " moſt powerful in relieving the ſymptoms of " calculus, are a variety of alkalines, which " are known to do this without their acting at " all in diſſolving the ſtone *."

Many authors, beſides Dr. Cullen, relate inſtances of relief in calculous caſes from medicines not lithontriptic; therefore, as they have no operation on the ſtone, they probably operate on the membranes, by deſtroying the ſpecific irritation. Perhaps future inquiries may lead us to remedies fitted to prevent the prediſpoſition to concretion, as well as to deſtroy the act of concretion when aſſumed. It has clearly been proved that this diſeaſe is the effect of irritation, of the mechanical kind, on membranes prediſpoſed to be affected; without this, mechanical irritation would always produce ſtone, and every ſtone have a nucleus; inſtead of which, we find ſtones can be generated with-

* Materia Medica Vol. II p. 12

out

out nuclei, and not generated when nuclei are preſent to produce them. Beſides, fœtuſſes have been found with ſtones in their bladder *, and parents have tranſmitted the conſtitutional predispoſition to their offspring.

I ſhall here conclude the pathology, and mode of treatment of calculi in general, and of inteſtinal calculi in particular; and ſhall now conſider their chemical properties, or the materials of which they are compoſed.

## SECTION II.

*Chemical Analyſis of the inteſtinal Calculi of Horſes.*

The inteſtinal calculi employed in theſe experiments were given to me by a perſon who obtains his livelihood by ſlaughtering horſes. The ſpecimens I have procured from him may be divided into three claſſes.

The firſt claſs includes forty ſtones, of various ſizes and ſhape, taken from the colon of a horſe. They have ſmooth ſurfaces, and readily

* Doctor Monro and Mr. Cline both mention in their Lectures to have ſeen ſtones in the urinary bladder of the fœtus; and Van Swieten relates the ſame.

take

take a poliſh; are of a dark-brown colour, and hard in their texture, but do not ſtrike fire with ſteel. The ſmalleſt weighs one ſcruple, the largeſt two ounces. In the ſmaller ſort the figure is pyramidal, in the larger, rhomboidal, with deep impreſſions on the ſurface. They are brittle, and ſplit by ſlight percuſſion, the fracture terminating with the external lamina; but if the ſtroke applied be conſiderable, the ſtones become cleaved in two, and diſcover in their centre a nucleus, which, in ſome, is an irregular pebble, in others a particle of iron *: round this the laminæ are accumulated, and their compoſition is beautifully regular, being ſtriated cryſtals curiouſly interwoven; their colour is brown and yellow.

Fig. 1, of Plate 1, repreſents one of the largeſt of theſe ſtones. A tranſverſe ſection of it ſhows the elegant arrangement of its cryſtals, in regular radii from the centre to the circumference. Its weight is an ounce and a half.

Fig. 2 (Plate 1) is an oval calculus, compoſed of numerous concentrated coats. A portion of it is broken off to ſhow this, and the

* The nucleus is not an invariable attendant, though obſervable in moſt of them.

line

Fig 6

Fig 4.

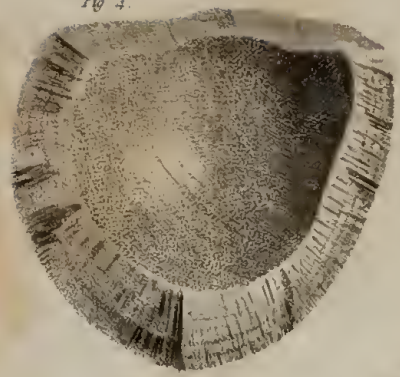

Fig 1.

Fig 5.

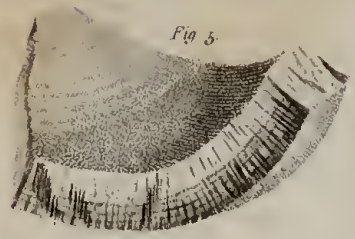

Fig 7.

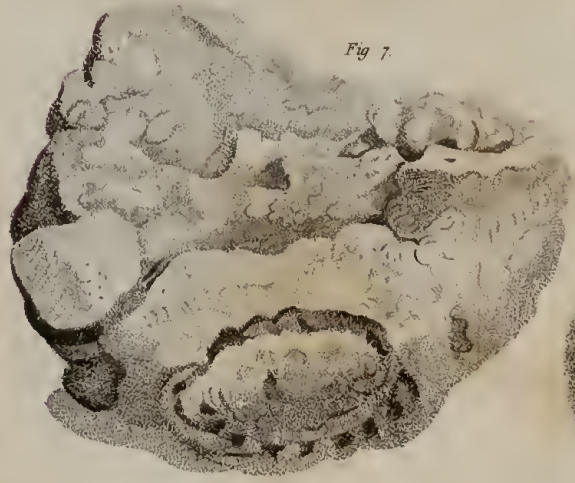

Fig 2

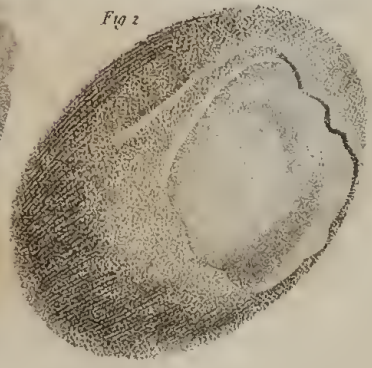

Fig 3.

Jos.ª Cristal del.

T Ravenhill sculp.

line of demarkation diſplays its thickneſs. Its weight is two ounces.

Fig. 3 (Plate I.) is a quadrangular ſtone belonging to this claſs of ſpecimens.

Figures 4 and 5 (Plate I.) ſhow two ſections of ſtony ſhells, broken from an entire oval ſtone. The ſmooth internal concave ſurface, and the radiated edge, with lines of ſeparation at right angles, diſplay its concentrated ſtructure and mode of cryſtallization.

The ſecond claſs includes but one ſtone, ſix pounds in weight, of a pale aſh colour, rough on its ſurface, and found ſolitary in the great inteſtine *. It is pyramidal in its form; hath three flat ſides and three rounded edges; a flat baſe, and obtuſe apex. It ſeems to be compoſed of innumerable lamellæ, diſpoſed in circles from the centre to the circumference, without any diſcernible nucleus. The denſity is different in different parts: about one inch from the ſurface it is ſolid and compact; the next inch and a half is ſpongy; from this to the centre, it is as condenſed as marble. Vide Plate II.

* I am unacquainted with the age, feed, or peculiar ſufferings of the animal from which this ſtone was taken; but am informed that it excited inflammation, and proved fatal.

Fig.

Fig. 1 * ſhows its radiated and laminated appearance internally; Fig. 2 exhibits its external ſurface. At one angle ſeveral laminæ are removed to ſhow that the deep-ſeated coats are ſimilar to the more ſuperficial ones.

The third claſs includes two ſtones. The firſt of theſe (Fig. 3, Plate II.) is of a clay colour, and approaches in figure to an irregular ſphere. It is rough on its ſurface and friable in its texture; and is divided by a tranſverſe ſection to ſhow the irregularities of its internal ſtructure. Its weight is ten ounces. Of the ſecond calculus of this claſs two figures are given (ſee Figures 6 and 7 of Plate I.) This is alſo of a clay colour, is irregularly rounded, ſpongy in its texture, without lamellæ, and beſpangled with many black gliſtening cryſtals. Fig. 6 ſhows its nucleus, which proved to be a harneſs button. The weight of this calculus is ſeven ounces.

All theſe calculi, compared with diſtilled water, poſſeſs the ſame ſpecific gravity, being as 86 to 72.

* This and the other two figures of Plate II. are on a reduced ſcale of half their natural diameter: but all the figures of Plate I. are of their full ſize.

EXPERI-

Fig 1.

Fig 2.

Fig 3.

Jos.h Cristall del

Ravenhill sculp.

## Experiment I.

*Action of Heat on Inteſtinal Calculus.*

One drachm of inteſtinal calculus, calcined for the ſpace of four hours, in an open crucible, was reduced to a black gritty powder, and deprived of half its weight.

The ſame weight of calculus, with twice its weight of charcoal, calcined for the ſame ſpace of time, produced an aſh-coloured calx, not ſuſceptible of attraction to the magnet. When a few grains of ſalt of tartar were added to the mixture, or the black flux was employed in place of charcoal, no particles of metal were diſcoverable.

Twenty grains of calculus, in fine powder, being ſprinkled upon red hot iron, did not ſmoke, nor ſparkle, nor ſmell; but rolled upon the ſurface of the metal, and became changed to a dark brown granulated powder; half its weight being evaporated.

Ten grains of calculus, and one ſcruple of nitre, being triturated together in a mortar, were projected into a red hot crucible; a few red

ſparks were thrown up, and a ſlight hiſſing noiſe was heard, but no active deflagration was obſerved. What remained in the crucible was hard and tough, of a pale aſh colour, of little taſte, and difficult ſolubility in water.

By the action of heat ſo uniformly diſſipapating one half of the weight of the calculus, and leaving the remainder a charred cinder, we may conclude ſome dry, oily, inflammable matter, and a large ſhare of ſublimable matter, to be reſident in theſe concretions: but nothing metallic like iron; for after calcination with charcoal, they diſplayed no attraction to the magnet.

## Experiment II.

*Action of Vitriolic Acid on Inteſtinal Calculus.*

Half an ounce of concentrated vitriolic acid by weight, being poured upon half a drachm of powdered calculus, excited no effervescence; but the acid loſt its colour and tranſparency, was changed to a deep black, and coagulated.

Six

Six drachms more of the acid being added, produced fluidity, and reduced the coagulum to the conſiſtence of coffee grounds. This being diluted with one ounce and a half of diſtilled water, ſome ſlight effervescence aroſe, and much heat was generated; the colour changed to a dark brown, and fluidity was greatly increaſed; while the mixture ſeparated into two parts, one a light brown tranſparent liquid, the other a collection of dark brown flocculi, which floated upon the ſurface of the liquid.

In two days one half of theſe flocculi ſubſided, but the remainder continued in ſuſpenſion. By agitating the phial, and then ſuffering the mixture to ſettle, the whole of the flocculi were precipitated. The fluid part was now ſeparated by filtration, and the flocculi collected on the filter.

Theſe flocculi were viſcid, of the conſiſtence and colour of thin treacle, of an acid taſte, empyreumatic ſmell, and incapable of deſiccation by heat. While expoſed to heat they exhaled a moſt fetid and ſulphureous ſmell, and the filter paper became ſticky and glutinous.

Some of theſe flocculi, collected by filtration were lixiviated with diſtilled water, but no ſort of ſolution was effected. When alcohol was employed in place of water, one half of the flocculi were diſſolved, and conveyed through the pores of the filter. What remained unattacked by the alcohol was dark coloured, and capable of deſiccation, but adhered ſo firmly to the paper, that no ſeparation could be effected.

A filtered ſolution of calculus in vitriolic acid precipitated a pale brown powder, on ſaturating the acid with cauſtic vegetable alkali. This powder, when properly lixiviated and dried, amounted to three grains; and, when diſſolved in dilute vitriolic acid, taſted very ſtyptic and aluminous.

Another ſolution of calculus in concentrated vitriolic acid was diluted with two ounces of diſtilled water, the feculent matter ſeparated by filtration, and the ſolution evaporated; when ſome cryſtals were formed, ſmall, yellowiſh, and tranſparent, ſtyptic to the taſte, with a ſlight degree of bitterneſs. In attempting to evaporate to dryneſs, they melted into a dark-brown oil, very ſulphureous and offenſive.

Two

Two ſcruples of calculus put into a glaſs retort, were expoſed to the heat of a ſpirit lamp, with one ounce weight of concentrated vitriolic acid, when the retort became filled with a white cloud, and the acid was converted into that which is volatile and ſulphureous.

If we attend to the phenomena preſented by theſe experiments, we may obſerve phlogiſton and argillaceous earth to be two of the conſtituent parts of calculus. The converſion of the acid into a black coagulum, and this, on the application of heat, being changed into volatile ſulphureous acid, demonſtrate the exiſtence of phlogiſton *; while the ſtyptic taſte of the dilute ſolution, and the aluminous ſalt formed by evaporation, demonſtrate the exiſtence of clay. The bitterneſs attending this ſalt may be attributed to the preſence of magneſia.

* In the preſent ſtate of chemiſtry I may be criticized, perhaps, for employing the term phlogiſton, or attempting to explain any of theſe phenomena by its agency; but as many chemical philoſophers in this country have not yet rejected the phlogiſton of Stahl for the pneumatic ſyſtem of Lavoiſier, I hope to be excuſed in the choice of it.

## Experiment III.

*Action of nitrous Acid on inteſtinal Calculus.*

Half an ounce of fuming nitrous acid being poured upon half a drachm of calculus, ſome ſlight effervescence aroſe, and the acid was changed to a deep orange colour, with a copious diſcharge of red vapours. After the diſſipation of the vapour, the whole of the calculus was in ſolution, and the mixture became yellow and tranſparent. One ounce of diſtilled water being added, a violent effervescence aroſe, and the colour became changed to green. When the effervescence ceaſed, the yellow colour was aſſumed again. In a few days, ſome pale yellow flocculi were ſeparated, which were inconſiderable in quantity, and gradually ſubſided. The ſolution was paſſed through a filter, and then decompoſed by the cauſtic vegetable alkali, though every alkali was in poſſeſſion of this property. The precipitate was waſhed, and dried; when it amounted to twenty grains. If aërial alkali were employed, the powder acquired eight grains in weight; and if this again were

were diſſolved in an acid, the eight grains were diſſipated in gas.

This precipitate was inſoluble in water, alcohol, or cauſtic volatile alkali; but was ſoluble in lime water, cauſtic vegetable alkali, and cauſtic mineral alkali; alſo in dilute vitriolic acid. With the alkalies it produced no change in their cauſticity, and a large quantity was neceſſary for ſolution. With the dilute vitriolic acid it produced a very ſtyptic and aluminous compound.

To a ſolution of calculus in nitrous acid ſome phlogiſticated alkali was added, to mark the preſence of iron, but no blue powder was precipitated; neither could calcareous earth be detected, either by the acid of ſugar, or concentrated acid of vitriol.

Forty grains of calculus were diſſolved in half an ounce of aqua fortis, this quantity of calculus being as much as the acid would take up. The ſolution, upon being evaporated in a glaſs ſaucer, cryſtallized into a lemon-coloured ſalt. This ſalt, by expoſure to the atmoſphere, attracted humidity, and one half melted into a pale yellow tranſparent liquid; while the other, in form of a whitiſh cake, was firmly adherent to the glaſs. The liquid part,

amounting to two drachms, was decanted off, and tafted extremely bitter, like a ftrong infufion of orange peel. Two ounces of diftilled water being added to it, produced no alteration of its tranfparency; but *oleum tartari per deliquium* being dropped in, it inftantly became turbid, and a quantity of white powder was precipitated. This powder, which, after lixiviation and drying, amounted to fixteen grains, was as white as milk, and very fimilar to magnefia. Diluted vitriolic acid was poured upon this precipitate, when a flight effervefcence arofe, and three grains of gas were diffipated, which had probably been abforbed from the alkali. The folution was flowly effected, and though excefs of acid was employed, one grain refifted its action. After filtration and flow evaporation, fome tranfparent white cryftals were formed, very bitter, ftyptic, and acidulous.

As the nitrous acid, according to Bergman and Scheele, is capable of decompofing urinary calculi, and feparating an acid, *fui generis*, called the acid of calculus, in form of rofe-coloured cryftals, foluble in water, and capable

ble of ſtaining animal ſubſtances red; and as theſe celebrated chemiſts have attributed the formation of calculus to the preſence of this acid in union with animal earth, I have beſtowed peculiar attention, in my analyſis of inteſtinal calculus, to look for the acid they deſcribe. To diſcover this, ſome nitrous acid was ſaturated with inteſtinal calculus, and though the ſolution was tranſparent, and of a pale yellow, yet, upon application to the ſkin, no red coloured ſpots were formed, which ſhould have been effected, had the lithic acid been preſent: beſides, the ſkin was irrritated conſiderably, ſpotted yellow inſtead of red, and incapable of ablution by water; while the roſe-coloured ſpots deſcribed by Scheele, were ſoluble in water, and no way irritating to the ſkin.

Another portion of nitrated ſolution of inteſtinal calculus was evaporated to dryneſs, which, if the lithic acid were preſent, ſhould have left a roſe coloured ſalt; but, in place of this, yellow-coloured cryſtals were formed, one half of which was nitrated magneſia, the remainder an inſipid white concrete, neither calcareous, aluminous, nor magneſian. The anonymous author, already quoted, in his new Theory of the Gout and of the Stone, relates,

that the lithic acid is contained in the healthieſt urine, and is ſeparable from the ſame, in a cryſtalline form, by means of any other acid. To examine this precipitate, I collected ten grains, by adding a few drops of marine acid to eight ounces of recent urine, and frequently repeating the experiment. But after being collected, waſhed, and dried, inſtead of poſſeſſing the properties of an acid, it was inſoluble in water, inſipid to the taſte, and changed the blue infuſion of red-cabbage leaf, green; and inſtead of forming roſe-coloured cryſtals after ſolution and evaporation in nitrous acid, a yellowiſh white powder was left, which appeared to be animal earth. It preſented phenomena very ſimilar to the coagulable lymph of the blood; for it changed vitriolic acid black, and diſſolved; admitted of dilution with water to a certain extent, beyond which the acid was abſtracted, and moſt of the earth precipitated. The precipitate of urine was found ſoluble in the three mineral acids concentrated, and decompoſable by dilution with water; and coagulable lymph, ſimilarly treated, was found equally ſoluble in the concentrated acids, and equally decompoſable by water.

## Experiment IV.

*Action of Muriatic Acid on Inteſtinal Calculus.*

Half an ounce of concentrated muriatic acid being poured upon half a drachm of powdered calculus, the acid became dark brown, and little of the ſtone was taken up. This being diluted with one ounce meaſure of diſtilled water, ſome ſlight effervescence aroſe; the colour changed to a light brown, and the mixture became tranſparent. In a few minutes it grew turbid, and many brown flakes were ſeparated and depoſited at the bottom of the phial. The ſolution being filtered, and then decompoſed by aërial vegetable alkali, eighteen grains of light brown precipitate were collected, which, when diſſolved in dilute vitriolic acid, taſted very ſtyptic and aluminous. This aluminous liquid was afterwards decompoſed by pure magneſia, when an aſh-coloured power ſubſided, which proved to be argillaceous.

In

In the experiments of Scheele on urinary calculus with muriatic acid, he found this acid incapable of producing ſolution, whether it be concentrated or diluted; but in my experiments with this acid on inteſtinal calculus, ten grains in thirty were taken up, whether the acid were concentrated or diluted, cold or expoſed to heat. Eighteen grains were ſpecified to have been precipitated, but eight of theſe were the aërial acid abſorbed from the alkali employed.

## Experiment V.

*Action of Acetous Acid on Inteſtinal Calculus.*

Six drachms of diſtilled vinegar, digeſted with thirty grains of calculus, became dark brown, and turbid. When diſtilled water was added to the mixture, a ſlight effervescence took place, the colour became paler, with quick ſeparation of ſediment. The mixture being filtered, was decompoſed by the vegetable alkali, when a light brown powder was precipitated, amounting to fourteen grains. This, diſſolved

diſſolved in weak vitriolic acid, was ſtyptic, bitter, and aluminous.

One ſcruple of calculus was digeſted four-and-twenty hours with half an ounce of diſtilled vinegar. This was filtered, and the clear liquor evaporated, when ſix grains of a pale brown ſalt were collected, without any ſenſible taſte, but completely ſoluble in two-ounce meaſures of diſtilled water.

## Experiment VI.

*Action of Aërial Acid on Inteſtinal Calculus.*

Ten grains of each ſpecimen of calculus, digeſted three days in ten ounces of diſtilled water impregnated with fixed air, were completely diſſolved by the menſtruum, excepting one grain.

## Experiment VII.

*Action of Aërial Vegetable Alkali on Inteſtinal Calculus.*

Twenty grains of calculus were triturated in a mortar with twenty grains of ſalt of tartar, and

and four ounces of diſtilled water. The mixture was filtered through blotting paper, and the reſiduum, when dried, amounted to fifteen grains. Theſe fifteen grains being triturated with the ſame weight of ſalt of tartar, and four freſh ounces of diſtilled water, only two grains paſſed through the filter. By repeating this experiment ſeven times more, with the ſame weight of alkali as of ſtone, and four ounces of water with each trituration, the whole of the calculus was in ſolution; ſo that thirty-ſix ounces of water with 101 grains of Alkali, were requiſite for the ſolution of twenty grains of calculus, aided by repeated triturations.

Though aërial vegetable alkali, aided by trituration, rendered calculus ſoluble in water, yet a ſaturated ſolution of the ſame alkali in water had no ſolvent power, when the trituration was omitted. This is ſimilar to what happens in the action of magneſia on Peruvian bark, (remarked by my late worthy and ingenious friend, Dr. Skeete *) for magneſia, whether calcined

* Experiments and Obſervations on Quilled and Red Peruvian Bark. 8vo. London, 1786, p. 54.

or

or uncalcined, promoted the ſolution of the active parts of bark in water, if aſſiſted by trituration, but ſhewed no ſort of ſolvent influence on bark by ſimple maceration in a phial.

When calculus was triturated with dry alkali, and a few drops of water were ſuperadded, a volatile alkaline odour was evolved; but if quick lime were added inſtead of vegetable alkali, in the proportion of four ſcruples of lime to two ſcruples of ſtone, and heat applied to the retort, ſome cauſtic volatile alkali was collected.

Volatile alkali is a ſalt abundant in animal matter, and moſtly neutralized by the acid of phoſphorus; and according to the experiments of Scheele, Bergman, Higgins, and Auſtin, on human calculus, it is found to be part of its compound; therefore, inteſtinal calculus of the quadruped being an animal production, the preſence of this ſalt might be expected.

## Experiment VIII.

### *Action of Cauſtic Vegetable Alkali on Inteſtinal Calculus.*

Forty grains of ſolid calculus infuſed in ſix ounces of cauſtic vegetable alkali, imparted a deep

deep-brown colour to the lixivium, and loſt twenty-five grains of its weight; but no complete ſolution could be effected. If the alkaline lixivium were diluted with five times its weight of water, the external ſurface became bleached, without one grain diminution in weight.

## Experiment IX.

### *Action of Cauſtic Mineral Alkali on Inteſtinal Calculus.*

A ſmall calculus, of a brown colour, and weighing thirty-three grains, was digeſted three days, in two ounces of cauſtic mineral alkali; when the external ſurface became pale, was reduced into white flocculi, and ſeparated by the ſlighteſt agitation. The calculus being removed from the lixivium, well waſhed in diſtilled water, and dried, was found ſeven grains diminiſhed in weight: the external lamina was in ſolution, the next ſeparated in flakes, and the third loſt its colour and texture. The remaining twenty-ſix grains were returned into the phial, and digeſted two days with one ounce of freſh alkali; when the ſurface of the calculus, which

which was deeply corroded, ſeparated from the interior lamina, leaving a dark brown central body, beſtudded with numerous ſpiculæ of white, tranſparent, and oblong cryſtals. Theſe cryſtals, mildly ſaline in their taſte, were a pure *ſal ſodæ*, which only could have been formed by the attraction of the alkali to ſome mephitic acid contained in the ſubſtance of the ſtone, as the air of the atmoſphere was excluded. By repeated applications of freſh cauſtic alkali, the reſidue of the calculus was diſſolved, excepting three grains, which no quantity of alkali would act on.

As the cauſtic mineral alkali ſeemed a powerful ſolvent of calculus, and promiſed to be a good lithontriptic, I attempted to aſcertain its power in dilution. For this purpoſe, ſeven grains of ſolid calculus were infuſed twenty-four hours in one ounce meaſure of this alkali and four ounce meaſures of diſtilled water, when the calculus loſt one grain in weight: by the ſecond application one grain more; by the third two grains and an half; by the fourth half a grain; by the fifth one grain; and one grain remained unaffected.

## Experiment X.

*Action of Cauſtic Volatile Alkali on Inteſtinal Calculus.*

Twenty grains of ſolid calculus, macerated in two ounces of cauſtic volatile alkali, were not in the ſmalleſt degree leſſened in weight, nor changed in colour or texture. The ſame quantity of calculus in fine powder, being macerated together for three days, was two grains diminiſhed in weight, but no farther ſolution could be effected.

## Experiment XI.

*Action of Lime Water on Inteſtinal Calculus.*

Eight grains of dark-brown calculus, infuſed in eight ounce meaſures of recent lime water, loſt nothing of their weight or colour; but eight grains of aſh-coloured calculus, infuſed in eight ounce meaſures of lime water, were three grains leſſened in weight. The grey coloured calculus

calculus loſt two grains in weight, but no farther ſolution could be effected.

From theſe experiments with alkaline ſalts and lime water, we may obſerve the mineral and vegetable alkalies to be powerful ſolvents, while cauſtic volatile alkali and lime water are conſiderably inferior in their powers.

The ſolubility of inteſtinal calculus by alkaline ſalts ſhows its great affinity to the urinary calculus of the human body, analyzed by Scheele, Bergman, Lane, Higgins, and Auſtin. All theſe chemical philoſophers found the human calculus ſoluble in alkaline menſtrua and lime water; but this ſolubility was not uniform; for it differed in different calculi, and in different laminæ of the ſame calculus. But one thing may be worthy of notice, that the mineral alkali was always the moſt powerful agent, and the facility of ſolution was always in proportion to their volatility by fire.

Some calculi are with difficulty ſoluble in alkaline lixivia; for Dr. Black had a calculus from the human bladder, of an ounce weight, which took two years to complete its ſolution; and he has ſeen patients, under an alkaline me-

dicinal courſe which had no obvious ſolvent effects.

## Experiments XII. XIII.

*Action of Water on Inteſtinal Calculus.*

Firſt, *Cold Water*—Half a drachm of calculus in powder, infuſed three days in two ounce meaſures of diſtilled water, and agitated, ſhewed no diſpoſition for ſolution. After agitation it ſeparated into two diſtinct parts, one a fine light brown powder, capable of being ten minutes ſuſpended; the other a dark brown heavy powder, which quickly precipitated to the bottom. The liquid part with the light coloured powder in ſuſpenſion, was decanted from the droſs, and then filtered, dried, and carefully weighed, when it amounted to twelve grains: while the heavy brown powder, ſimilarly examined, weighed eighteen grains; which, added to the other made thirty grains, being the amount of the quantity infuſed.

Eight grains of calculus being infuſed in eight ounces of cold water for three days, one grain appeared in ſolution; but no additional quantity of

of water ſeemed capable of diſſolving the remainder.

Secondly, *Boiling Water*—Twelve grains of powdered calculus boiled in a florentine flaſk with twelve ounces of diſtilled water, diſſolved two grains, which paſſed through the pores of the filter; but no farther ſolution could be effected.

The watery ſolution was divided into five diſtinct portions, and cauſed the following metallic precipitations; extract of lead white; vitriol of iron light grey; vitriol of zinc milk white; vitriol of copper green: and when mixed with lime water, the latter immediately became turbid, without any ſenſible diminution of cauſticity.

From the action of fire and acids upon theſe ſpecimens of inteſtinal calculus, they appear to be compoſed of the following ſubſtances, variouſly proportioned and combined, viz. dry animal oil—animal gelatinous matter—volatile alkali—argillaceous earth and magneſia. I alſo ſuſpected phoſphorus acid to be preſent from the reſult of the following experiment:

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Some powdered calculus, charcoal duſt, and ſalt of tartar, were put into a two-ounce phial. This was placed in a large crucible, and the ſpaces filled up between the phial and ſides of the crucible with ſand. After two hours expoſure to a cinder fire in a common bath ſtove, the ſides of the phial in contact with the ingredients, and the ingredients themſelves, became one ſolid vitrefied maſs.

My ſuſpicion, however, with reſpect to the exiſtence of phoſphoric acid in theſe concretions, has ſince been proved to be not well founded, by the following experiment, made at Guy's Hoſpital, by my ingenious friend Mr. Babington.

Six ounces of dark brown calculus, in powder, were put into a florentine flaſk, with four ounces of concentrated vitriolic acid, and twice that weight of diſtilled water—The mixture was expoſed to heat, and gently boiled for about thirty minutes, after which it was immediately filtered. The flaſk was now waſhed with eight freſh ounces of diſtilled water, which being gently heated, were thrown into the filter with the former. The clear ſolution, amounting to ſomewhat more than a pint, was unavoidably left for about two days, when it was decanted for the purpoſe of being evapo-

evaporated; and the bottle was found incruſted with a collection of moſt beautiful cryſtals.—Theſe cryſtals, perfectly tranſparent, were white in colour, and variouſly ſhaped—eaſily ſoluble, and when put upon the tongue taſted mildly ſaline and bitter. Their upper ſurface was thickly beſet with needle-ſhaped ſpiculæ, or white, tranſparent, and hair-like cryſtals, which were quite inſipid, difficultly ſoluble in water, and decompoſable by acid of ſugar. To prove the baſis of the larger cryſtals, a few grains were triturated with quick-lime, when a pungent odour was evolved, which proved to be volatile alkali. Therefore volatile alkali, and vitriolic acid formed the compound of the larger cryſtals; while calcareous earth, and the ſame acid, formed the compoſition of the ſpiculæ. But as Epſom ſalt was ſuſpected to be preſent in the larger cryſtals, from the bitterneſs of their taſte, ſome cryſtals were diſſolved in water, and then decompoſed by vegetable alkali, when a milk white powder was dropped, which re-diſſolved in vitriolic acid, and proved to be pure magneſia.

The filtered liquor of vitriolic ſolution, after decantation from the cryſtals, was evaporated to the conſiſtence of a ſyrup, then mixed with

charcoal duſt, and diſtilled in a retort; but though much volatile ſulphureous acid, and hepar of ſulphur came over, nothing like phoſphorus was diſcernible. Therefore a large ſhare of phlogiſton, volatile alkali, and magneſia, were diſcoverable in this ſtone, but only a very minute portion of lime, and no ſenſible quantity of phoſphorus.

VI. *An Account of the good Effects of Opium in a Caſe of retention of Urine. By Mr.* Alexander Mather, *Surgeon at York. Communicated in a Letter to Mr.* John Pearſon, *Surgeon of the Lock Hoſpital and Public Diſpenſary, in London; and by him to Dr.* Simmons.

*To Mr.* PEARSON.

SIR,

THE mode of treatment adopted in the following caſe, was ſuggeſted by the ſucceſsful treatment of an affection of the ſame kind of which you have given an account in the ſixth volume of Medical Obſervations

and Inquiries; I therefore think it right to tranſmit to you an account of the caſe, as it affords another ſtriking inſtance of the good effects of opium in caſes of retention of urine from a ſpaſmodic conſtriction of the *ſphincter veſicæ*. If you think it worthy of being communicated to the public, as a ſupplement to your valuable paper, it is much at your ſervice.

I am, &c.

ALEXANDER MATHER.

*York,*
*September 8th*, 1792.

## CASE.

Mr. D——, of B——, who had formerly been ſubject more than once to gonorrhœa, being on a viſit to a friend about ſeven miles from York, in the evening of a Sunday in the beginning of June, 1791, was ſeized with a frequent inclination to make water, accompanied at firſt with a ſlight degree of ſtraining and pain about the neck of the bladder. In a little time the motions became more frequent, and the ſtraining and pain greater; very little urine paſſed, and about ſix in the evening he could not part

with a drop, and the ſtraining and pain were very violent. Having had two attacks of this kind before, one of which had continued thirty-two hours, and remembering that opium had then been given him to the amount of ſixty drops, he took twenty-five drops of laudanum, and ſoon after fifteen more, and ſent for me.—I took with me three grains of extract of opium.

When I arrived, about eight o'clock in the evening, I found him, every four or five minutes, ſeized with a dreadful ſpaſm, occaſioning an involuntary and ineffectual effort to make water: the agony and ſtraining reſembled much the pains of a woman in labour. I gave him immediately a grain of opium and threw up an emollient clyſter, and directed him to ſit over the ſteam of water, as means that were moſt readily obtained. He ſeemed at firſt to be relieved, but the ſpaſms afterwards returned with greater violence than before. At this time there was no conſiderable tenſion of the bladder, and as every circumſtance indicated the diſeaſe to be purely ſpaſmodic, I did not think proper to attempt to uſe the catheter, leſt the evil ſhould be increaſed. The practicability of introducing it into the bladder was alſo very dubious; for it was with the greateſt difficulty that the pipe

uſed

uſed for the clyſter could be paſſed into the rectum; and during its ſtay there the ſpaſms recurred with greater violence. For theſe reaſons, I determined to depend entirely on opium, and to give it in ſuch quantity, and at ſuch intervals, as the urgency of the caſe ſeemed to require, *i. e.* till the contractile power of the *ſphincter veſicæ* ſhould be ſuſpended: I therefore gave him within the hour another grain of opium, and deſired that fifteen or twenty drops of laudanum ſhould be adminiſtered every hour, or, if the violence of the ſpaſms ſhould continue, every half hour, and requeſted to be informed in the courſe of the night if he was not relieved.

At two o'clock in the morning I received information that he was no better. I immediately went to him, and, arriving about three, I found he had inſenſibly parted with a little urine, but had not ſlept at all. The plan I had recommended had been diligently purſued.

As the ſpaſms ſtill recurred, though more ſlightly than when I ſaw him before, I gave him another grain of opium. After this he fell aſleep, and continued dozing near an hour, during which time about a pint and a half of urine inſenſibly flowed from him. When he firſt fell aſleep the ſpaſms left him and returned

no

no more; but though he did not ſleep much after the firſt hour, his urine continued to flow without his knowledge, and equally ſo whether he was aſleep or not. Nine hours elapſed after the complaint became violent before he found relief, and in that time he took three grains of extract of opium, and ſeventy-five drops of tincture of opium, prepared according to the London Pharmacopœia. The opium, though given thus freely, left no ſtupor or even drowſineſs. He had leſs ſleep than uſual in the enſuing twenty hours, and his pulſe was not at all affected till after the laſt grain of opium was given; and then it only became ſofter and weaker than natural, and remained ſo during the enſuing day. Forty drops more of the tincture of opium were given in the courſe of the next day and night by way of prevention, and this quantity kept up rather a copious perſpiration while the patient was in bed. When he roſe the next morning (Tueſday) he was as well as he had been before this attack, if we except a very ſlight degree of languor.

The effect of the opium in this inſtance was equally deciſive and pleaſing; and I am inclined to think that the complaint would have given way ſtill ſooner if the medicine had been given more

more liberally at firſt. But till we have more experiments to aſcertain the quantity of opium that may with ſafety be given in ſpaſmodic diſeaſes, it will perhaps be moſt prudent to exhibit it at firſt, in ſmall doſes and at ſhort intervals. I think it right to remark, however, that from the inſtances of ſuch affections in various parts of the body that have come under my obſervation, I have learned that opium may be given to ſuſpend ſpaſm in abundantly more liberal quantities without producing its uſual narcotic effects, than in any other diſeaſe in which it is adminiſtered.

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VII. *A Caſe of monſtrous Birth. By the ſame.*

HISTORIES of monſtrous births ſeem to become intereſting in proportion as they add to the varieties in this way already deſcribed, or as they tend to afford uſeful hints to the practitioner of midwifery in ſimilar caſes. Conſidered in the latter point of view, the following caſe

caſe may, perhaps, be deemed worthy of being recorded.

In the evening of Auguſt 16th, 1789, I was called to the wife of a miller in this town who had gone her full time. She informed me that ſhe had had no pain, but that having felt an inclination to make water, ſhe had got up, and immediately felt ſomething drop into the vagina. On examining her I found the foot of a child without the os externum; another foot in the imperfectly dilated os uteri; and a third limb preſenting itſelf a little higher up. Being unwilling to occaſion unneceſſary pain to the patient, I did not attempt to aſcertain what this laſt was, but conjecturing that it was a hand that had ſlipped into the pelvis, and that it would not impede the progreſs of the labour as a foot preſentation, I waited patiently for the coming on of the pains. In a ſhort time they came on, and on examining during a pain, I was ſurprized to find that the higheſt limb ſeemed to deſcend in an equal proportion with the reſt. I now thought it proper to aſcertain whether it was a hand, and by the help of ſlow and weak pains, was ſoon convinced that it was a third foot. As the circumſtances of the caſe were uncommon, and I had reaſon to think there was ſomething preternatural

ternatural in the form of the fœtus, I requeſted the aſſiſtance of a gentleman who had had conſiderable practice in midwifery. He was ſoon convinced that three feet preſented; and ſuppoſing that two children had ſlipped together into the pelvis, adviſed me to advance the two firſt feet and retard the other as much as poſſible, leſt, by deſcending together, the bodies might be ſo compreſſed in the pelvis as to make the delivery very difficult. This I accordingly, by gentle means, attempted to do, but was more and more convinced of a preternatural formation of the fœtus, the three limbs deſcending ſtill together: I therefore ſoon deſiſted, wiſhing to leave the caſe to nature; but the gentleman I had called in ſtill maintaining his opinion, made likewiſe an attempt to return the higheſt limb, and for ſome time uſed conſiderable force for that purpoſe, but without effect. During his efforts a fourth foot came within reach; and we now agreed to leave the caſe to nature.

In order to watch the progreſs of ſo curious a labour I continued at the bed ſide, and the pains increaſing, I plainly perceived the fourth foot deſcend with the others, and when it reached the os externum I drew it down to the ſame length, and paſſing my hand between the two

pair

pair of legs, I felt the junction of two bodies at the navel; I therefore encloſed the four limbs in a cloth, and was pleaſed to find the fœtus deſcend eaſily with every pain.

Fearing ſome obſtruction at the ſhoulders, (if this mal-conformation of parts ſhould extend to them,) as ſoon as the bodies were advanced to the ribs I ſought for the arms and ſucceſſively brought down four. I then immediately paſſed my finger above the brim of the pelvis and ſoon found a mouth, by which I brought down a head into the cavity of the pelvis; it paſſed the os externum very eaſily, and was immediately followed by another head preſenting to us two male children completely and naturally formed in every part, except that at the top of the ſternum a junction of their bodies began, which was continued down to the navel. They were ſupported in the uterus by one umbilical cord which was attached to one large placenta. The cord terminated exactly in the center of the angle made by the junction of the bellies of the two children.

Being deſirous of retaining intire ſo extraordinary a fœtus, I did not examine the ſtructure of any of the internal parts; but it is evident that there is only one ſternum common to both,

and

and that the ribs riſe by one origin from it, and then divaricate to form a ſeparate thorax to each child. The children were each as large as many are from ſingle births of nine months, but not ſo large ſingly as the former children of the ſame woman had been.

*York,*
*September 8th,* 1792.

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## VIII. *A Caſe of Varicoſe Aneuriſm.* *By Mr.* H. Park, *Surgeon to the Liverpool Infirmary.*

JOHN HARTLEY, a youth about twenty years of age, preſented himſelf at the Liverpool Infirmary in May, 1791. His account of himſelf was, that he had been bled in the right arm in the preceding January; that he had more than uſual pain at the time, and thought he had been pricked too deep; that he continued his work (that of a wheelwright) for a week after the operation, and then perceived a ſmall hard tumor immediately under the orifice, which had

had gradually increaſed to its preſent ſize, which was ſomewhat larger than a walnut. It was then as ſoft as aneuriſmal tumors generally are; had an evident pulſation, and on preſſure, or on holding up the arm, diſappeared in a conſiderable degree, but not entirely; from which it was evident, that the whole of the blood contained in the tumor was not in a ſtate of fluidity, but that ſome coagulum was formed. The peculiar thrilling ſenſation, ſo accurately deſcribed by Doctors Hunter and Cleghorn, was very plainly perceptible more than half way up to the axilla, and the baſilic vein was a good deal diſtended, but not in the degree which they deſcribe in their caſes* of varicoſe aneuriſm, the tumor being ſtill on the increaſe, though ſlowly. On the whole, though there was no room to doubt that ſome part of the blood that was thrown out from the trunk of the artery was received, and did return, by the trunk of the vein, yet there was reaſon to fear that this did not take place in a ſufficient degree to ſecure the patient from the neceſſity of undergoing an operation at no very diſtant period; and therefore a guarded opinion was given him, with

* See Medical Obſ. and Inq. Vol. II. and III.

directions

directions to refrain from any laborious employment, and to let us see him again if any material change should take place. He called again at the Infirmary a few months afterwards, when it was evident that the tumor was still increasing faster than the distention of the vein.

On the 21st of January following he came into the Infirmary in considerable pain, from a high inflammation upon the arm, with evident marks of suppuration having taken place, and of the tumor being on the point of bursting; this he attributed to accidental cold; but it was probably owing to the sudden increase of the tumor, which had grown rather rapidly during the last month, and was now larger than an ordinary man's hand. An emollient poultice was applied, and a tourniquet was put loosely round the arm, with directions that he should be closely watched day and night. The next morning the skin opened, a small quantity of pus was discharged, the tumor subsided a little, and the patient became considerably easier.

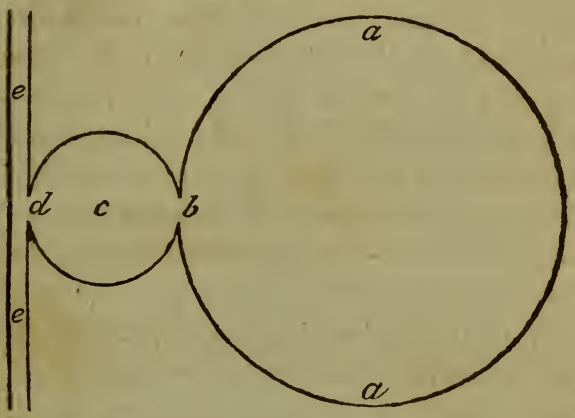
On the 24th in the evening the blood burst forth with considerable force, the tourniquet was tightened, and the Surgeons were called as soon as possible; some time, however, was unavoidably lost. On opening the sac, and re-

moving the coagulum, of which there was a conſiderable quantity, an orifice was diſcovered at the bottom of the cavity, not larger than is uſually made in veneſection, from which arterial blood flowed on looſening the tourniquet. A probe introduced into this orifice ſunk nearly an inch deep, but would not paſs much more than half an inch upwards or downwards, therefore we did not chooſe to venture a ligature till we were more ſure of the artery; believing there muſt be an inner cyſt. This orifice was cautiouſly enlarged with the ſciſſars, and was found to lead into a deeper cavity, large enough to contain a moderate ſized nutmeg; in this there was not any coagulum, but at the bottom of it was diſcovered another orifice, of about the ſame ſize as the former; and a probe, introduced into this, paſſed readily upwards and downwards in the cavity of the artery. Directed by this probe, a ligature was paſſed underneath the artery, above the orifice, and tied. On looſening the tourniquet the blood flowed out as freely as before; another ligature was paſſed in the ſame manner below the orifice, and tied; and on looſening the tourniquet now, no farther hæmorrhage appeared.

I ſhould

I ſhould have mentioned that early in the operation an external branch of the artery bled freely, and was tied.

A ſection of theſe cyſts would exhibit ſome ſuch appearance as this:




*a a*, the firſt or outer cyſt, *b*, the orifice leading into the ſecond or deeper cyſt, *c*, at the bottom of which was ſeen the orifice *d*, leading into the cavity of the artery marked *e e*.

We kept the wound open more than half an hour, (waiting to ſee if any more hæmorrhage would take place) and then it was cloſed up as eaſily as poſſible, by merely bringing the edges together by means of long ſlips of adheſive plaſter.

The next day the œdematous ſwelling that had taken place in conſequence of the long

continuance of the tourniquet, in the ſpace of time between the burſting out of the blood and the concluſion of the operation, was conſiderably diminiſhed; there was comfortable warmth and feeling in the fore arm, and a faint pulſation in the radial artery. After this nothing remarkable occurred during the cure, excepting that the patient was ſo much threatened with ſymptoms of phthiſis pulmonalis, as to make it neceſſary to ſend him into the country as ſoon as the wound was reduced into a ſmall compaſs; —and that the upper ligature was thirteen weeks before it came away.

At the time of writing this (September 29th) the patient is perfectly well, has a good pulſation at the wriſt, though not quite ſo ſtrong as in the other, but the arm is equally ſtrong and muſcular, and has perfect motion; and he follows the trade of a ſhip carpenter, to which he has lately bound himſelf.

It will probably be aſked, if this was really in any degree a caſe of varicoſe aneuriſm, where was the vein? and, if it was ſituated between the outer and inner cyſts, why was it not diſcovered? and poſſibly I might be critic enough to aſk theſe queſtions myſelf, had this operation been performed by any other perſon; but I muſt

muſt beg leave to ſubmit the following conſiderations to experienced and unprejudiced practitioners. Firſt, the inflammation and ſuppuration had contributed to occaſion ſome degree of confuſion of parts. Secondly, the outer cyſt was ſo thick as to prevent any veſſels from being viſible that might run underneath it. Thirdly, the two ſides of the vein, when it was empty, might very readily be ſo cloſely preſſed together as to admit of a probe paſſing through its very center into the inner cyſt without the cavity of the vein being ever diſcovered; and if ſuch was the ſituation of the vein, it is, perhaps, happy for the patient it was not diſcovered; as there might have been ſome danger of its miſleading us to tie it inſtead of the artery. I muſt beg it may be farther conſidered, that the patient had been diſtreſſed by having the tourniquet unavoidably kept on the arm a conſiderable time before the operation could be begun; that it was obliged to be performed by candle light, and proved very tedious and perplexing; and that the patient was very much exhauſted: under which circumſtances, I conceive, I ſhall ſtand perfectly excuſable in attending only to the main object of my purſuit, viz. to diſcover and ſecure the wound in the

artery, and ſo terminate my patient's ſufferings with as much expedition as could be conſiſtent with perfect ſafety

As Dr. Hunter judiciouſly and humanely publiſhed his caſes with a view to prevent patients being unneceſſarily expoſed to a ſevere operation, ſo I think it incumbent on me to ſtate the above, as a caution to inexperienced practitioners, whenever they meet with ſuch appearances as the Doctor has deſcribed, but in a leſs degree, to be well aſſured that the veins will really dilate ſufficiently to take off the whole of the blood poured out by the artery, before they give ſuch a prognoſtic as may lull the patient into a deluſive and dangerous ſecurity.

IX. *An Account of the good Effects of Opium, adminiſtered in Clyſters, in Caſes of Menorrhagia. By Mr.* Peter Copland, *Surgeon at Swayfield, near Colſterworth, in Lincolnſhire.*

CASE I.

A woman at Colſterworth aged thirty-two years, and who had had four children, was attacked

tacked on the third of Auguſt, 1787, with a diſcharge of blood from the uterus, accompanied with pains in the loins and lower part of the abdomen. From the diſappearance of the menſes ſhe ſuppoſed herſelf in the third month of pregnancy; and her midwife, who was ſent for, concluded from ſome ſubſtances expelled with the diſcharge, that abortion had taken place: but the hæmorrhage not ceaſing, I was called to her aſſiſtance the next day. From this time till the eighth of November, bleeding, nitre, acids, alum, bark, and opiates, were uſed by turns, or conjointly, as circumſtances ſeemed to indicate; but with temporary relief only, the pain and hæmorrhage always returning, and, at times, hardly yielding to the means employed.

The patient was now much reduced; and, as I ſuſpected that there was a local diſeaſe of the uterus, I was apprehenſive that the caſe would terminate unfavourably. It, however, at this time occurred to me that Dr. Whytt, in his Obſervations on Nervous Diſorders, had noticed the ſubject of uterine hæmorrhages; and accordingly, on conſulting that work, I found the following remark: "When a pro-"fluvium menſium, or a flooding after abor-

" tion, is attended with, or preceded by, an acute " pain, not inflammatory, in the lower part of " the back or belly, and returns with greater " violence; as often as the pain returns or in- " creaſes, opium will prove a more effectual " remedy than any of the aſtringents."—I therefore, in imitation of the treatment uſed in the caſe there deſcribed *, directed that fifty drops of tincture of opium ſhould be mixed with a large tea cupful of cold water, and adminiſtered every night as a clyſter; and that coſtiveneſs ſhould be obviated by the occaſional uſe of laxative clyſters. The reduced ſtate of the patient, from the long continuance of the hæmorrhage, induced me to continue the uſe of aſtringents alſo in the day time.

From the firſt employment of the anodyne clyſter ſhe experienced much relief. It was repeated at firſt every night, then every ſecond night, and afterwards occaſionally till the twenty-ſeventh of November, when ſhe was quite well.

Being much ſtruck with the alteration that ſucceeded the adminiſtration of the anodyne clyſter in this caſe, I determined to give it a

* See the edition of his works, in 4to. p. 661.

further

further trial on future occaſions. The following caſes have ſince occurred.—I ſhall relate them from the notes I took of each.

## CASE II.

A woman at Caſtle-Bytherm, aged forty-four years, was attacked on the thirtieth of September, 1791, with a diarrhœa, unaccompanied with teneſmus; ſoon after which the menſtrual diſcharge took place (a fortnight only after its laſt appearance) with pain, returning at intervals, and extending from the upper part of the right groin acroſs the abdomen, and ſometimes acroſs the loins. Theſe ſymptoms continued on the fourth of October, when I firſt ſaw her. Her pulſe was then ſmall and quick. A ſolution of magneſia vitriolata in water was directed to be taken immediately, and an anodyne aſtringent draught after ſufficient evacuations.

5th. She had ſeveral evacuations yeſterday, and a good night; but two looſe ſtools this morning.—An aſtringent mixture, with tincture of opium, was directed to be taken at intervals.

6th.

6th. The purging ceaſed yeſterday; but the uterus, with the pain of the abdomen, ſtill continued unabated. Sixty drops of tincture of opium in five ounces of water were directed to be injected *per anum*.

7th. The diſcharge was leſſened, but the pain continued in a conſiderable degree. As ſhe had had no ſtool ſince the 5th in the morning, a rhubarb bolus was ordered to be taken immediately. This produced an evacuation, and the clyſter with opium was then repeated. A piece of folded linen, wetted with tincture of opium, was applied to the right groin* after the adminiſtration of the clyſter.

11th. The pain ceaſed, and the diſcharge diſappeared after the laſt clyſter; but the purging having returned, recourſe was again had to the aſtringent mixture. I did not ſee her again till the firſt of November following, when ſhe informed me that the purging ſtopped after the repetition of the mixture, and that ſhe had continued well ever ſince.

* Upon examination no appearance of rupture could be diſcovered.

CASE

## CASE III.

In my way through Creeton, on the nineteenth of October, 1791, I was desired to see a woman aged forty-two years, the mother of several children, who had miscarried after having gone above half her time, on the eleventh instant. From that day she had had a coloured discharge, in more or less degree, from the uterus, till a few hours before I saw her, when she had been seized with a shivering, followed by periodic pains in the loins and abdomen, and an alarming increase of the discharge, with frequent faintings.

I found her on the bed with her cloaths on, and her face beset with cold sweat. Upon taking hold of her arm, with the intention of examining the state of her pulse, it felt cold and moistened my fingers with its sweat, which she said extended to every part of her; and she repeatedly complained that her feet were very cold. Her pulse was small and irregular, beating one hundred and thirty times in a minute, and disappearing upon the least pressure from my fingers. A clyster, composed of seventy drops of tinc-

tincture of opium, and a large tea cupful of water, was immediately injected. She was desired not to undergo the fatigue of undreſſing but to remain upon the bed, to take ſtrong broth cool frequently, and occaſionally ſmall quantities of red wine mixed with water, if the diſcharge would permit. The room was directed to be kept well aired and cool, and cloths were introduced within the os externum, with a view to impede the diſcharge.

20th. The pains had diminiſhed after the introduction of the clyſter: ſhe had got ſome ſleep during the night, and the diſcharge had been inconſiderable. The univerſal cold ſweat was ſtill preſent, and vomiting took place this morning. Her pulſe was nearly the ſame as yeſterday. The clyſter with opium was directed to be repeated in the evening, or at any time in the day, ſhould the pain or diſcharge require it. Four table ſpoonfuls of a mixture compoſed of a pint of decoction of Peruvian bark, and two drachms of acid elixir of vitriol, were ordered to be taken every three hours.

21ſt. The clyſter had been adminiſtered yeſterday evening; ſhe had had a good night, and the ſweating and diſcharge had diſappeared. She retched once this morning. The exertion this occaſioned

occaſioned forced out a large coagulum of blood with the cloths from the vagina. Her pulſe was 110, regular, and leſs feeble. No motion having taken place ſince the 19th, a laxative clyſter was directed to be now employed; the uſe of the mixture was continued; and the clyſter with opium was repeated in the evening.

The laxative clyſter yeſterday produced a ſlight evacuation of fæces. She had now no pain or diſcharge, and her pulſe was at 100. The clyſter with opium was not repeated after this; but ſhe occaſionally had recourſe to the laxative clyſter, and perſevered in the uſe of the mixture till the tenth of November, at which time ſhe had regained her uſual health.

The preceding caſes to me afford a ſtrong proof of the juſtneſs of Dr. Whytt's obſervation; and, as I apprehend that it has not been ſufficiently attended to, I am deſirous of offering them to the medical reader, with the view of rendering the practice as general as its importance ſeems to deſerve.

*Swayfield*,
October 16, 1792.

X. *An Account of the good Effects of a Mercurial Snuff in a Case of Gutta Serena. By Mr.* R. B. Blagden, *Surgeon at Petworth, in Sussex.*

MR. ———, aged thirty-one years, of a spare habit, and subject to scrophulous affections of the sub-maxillary glands, between four and five years ago, on a sudden, and without the smallest injury or previous indisposition, became sensible of such a defect in the sight of his right eye, that he was unable to take his favourite diversion of shooting, in the usual way: however, as the sight of the left eye enabled him to read, and to use a left-handed gun pretty successfully, he was contented; and probably would have remained so, had not that likewise began to fail:—a circumstance of which he first took notice about six weeks before he applied to me.

On the 7th of October, when I first saw him, the pupils of both eyes were contracted to as great a degree as the pupil of a sound eye is by a sudden and strong light.

The

The pupil of the left eye, on the approach of a very vivid light, ſhewed ſo ſmall an alteration as to be ſcarcely perceivable; and that of the right none at all. With the left the patient could barely ſee the capital letters which the printers call the Four Lines Pica; with the right he could only diſtinguiſh light from darkneſs.

The caſe ſeemed to me a fair one for a trial of the mercurial ſnuff recommended, and ſo ſucceſsfully uſed, by Mr. Ware, in the third volume of the Memoirs of the London Medical Society; and I, accordingly, directed the patient to take a pinch of it (prepared by mixing five grains of the hydrargyrus vitriolatus with thirty-five of the pulvis aſari compoſitus) every night. As he ſmiled at the idea of being cured by a pinch of ſnuff, I gave him two tea-ſpoonfuls of a mixture, compoſed of equal parts of tincture of valerian and compound tincture of lavender, twice a day in a cup of roſemary tea: the doſe was, afterwards, increaſed to three tea-ſpoonfuls.

On the 21ſt of October the patient could ſee the capital letters with the right eye, and could read the Four Lines Pica print with the left.—The pupils were, in their general appearance, leſs

leſs contracted; and they were affected more ſenſibly by the impreſſion of light. The firſt five or ſix times of uſing the ſnuff it made his noſe bleed freely, and ſo long as it produced this effect, he thought he perceived the advances more ſtrikingly; an additional two grains and an half of the mercurial were therefore put to the next quantity of the pulv. aſari c. and the hæmorrhage from the noſe was reproduced as often as it was made uſe of.

On the 28th of October, the appearance and contraction of the pupils were natural;—the patient could read a newſpaper, and was able to ſhoot correctly with his right-handed gun.

On the 18th of November, the ſight of both eyes was in every reſpect perfect.

*Petworth.*
December 5, 1792.

XI. *A Caſe of Pulmonary Hæmorrhage, with Remarks. By Mr.* William Davidſon, *Apothecary in London.*

HAVING, in the third volume of Medical Facts and Obſervations, related two caſes of pulmonary hæmorrhage, and from them endeavoured to demonſtrate that the proximate cauſe of active hæmorrhage often conſiſts in diſtention and conſequent increaſed action of the blood veſſels, and to point out that abſtinence from liquids is a principal mean of removing this diſtention; I ſhall now beg leave to add another, which lately occurred, in further confirmation of that doctrine, and of the advantages reſulting from ſuch a method of treatment. The patient was a robuſt man, of a ſanguineous temperament, and about ſixty-four years of age. He had been affected with a ſevere cough for near four months before the preſent attack; and during the laſt ſeven or eight weeks had been ſpitting blood, mixed with a yellow expectoration; but without any pain in or about the cheſt.

Being ſent for on the fourth day of October, 1792, I found him in an inſenſible ſtate, as if from oppreſſion of the brain, with occaſional ſtrong contractions or convulſions of the right arm. His pulſe was ſtrong, frequent and full; his tongue was furred, and his breathing laborious. He had been juſt brought into the houſe from a Stone-maſon's yard, where he was employed in ſawing.

The perſons about him informed me, that, while at work, he was ſeized with a fit of coughing, and brought up about three or four pints of blood; that he ſoon after became inſenſible, and was immediately brought home. Conſidering the great hæmorrhage which had taken place, and the apoplectic ſymptoms now preſent, I conceived my patient to be in conſiderable danger, and that the moſt active method of relieving him ſhould be adopted: accordingly ſixteen ounces of blood were inſtantly taken from a large orifice in the arm. The blood, when coagulated, was covered with the buff coat, as it is called. A few minutes after the operation he became ſenſible, and complained of great pain in the anterior part of the cheſt; which, he ſaid, he had firſt perceived that morning.

About

About half an hour after the bleeding, he took a purging draught, chiefly compoſed of magneſia vitriolata. A large bliſter was alſo applied to the breaſt. He was particularly directed to refrain from drink during the operation of the purgative medicine; and, if thirſty, only to moiſten his mouth and throat with a little barley water.

In the evening I found him ſenſible, with leſs fever, his cough quiet, his breaſt eaſier, and he had not brought up much blood. His medicine had purged him ſeveral times.

A ſaline draught containing twenty drops of antimonial wine was now directed to be taken every ſix hours; he was ſtrictly enjoined to drink about half a pint only of liquid during the firſt twenty-four hours; and in every other reſpect to adhere rigidly to the antiphlogiſtic regimen.

October 5th, he had reſted pretty well, and expectorated about an ounce or two only of blood, which was chiefly in coagula: his breaſt was eaſier, but ſtill a little tight; his pulſe was much improved, and his ſkin was cool and moiſt. He had little thirſt, and his tongue was leſs furred. The uſe of the ſaline draught

was continued, and the opening draught was directed to be repeated in the morning. Being so much better he was now allowed a pint of liquid (including tea, &c.) in the twenty-four hours, and the same quantity only was permitted every day during the whole of his illness.

October 6th, he was still much better: he had rested well, had less cough, less fever, little bloody expectoration, and his pulse was nearly natural: his chest was much easier.

From this time to the 12th he continued gradually to recover. He had no expectoration of blood after the 8th, but the saline draught, and likewise the purgative medicine, were occasionally repeated, and he persevered in the limited use of liquids till the 12th, when I thought it unnecessary to visit him any longer. His pulse was then sixty-eight in a minute, and he was apparently in good health, only a little weak.

I afterwards learned that, contrary to my directions, he went upon duty, as patrole, on the Monday following, the 15th day of October.

Considering, therefore, the nature of this office, the season of the year, the age of the patient, and the short time since his recovery,

it

it cannot ſeem ſurpriſing that the diſeaſe was reproduced; accordingly, on the 25th, he was again ſeized with fever, difficult breathing, cough, and hæmorrhage. He continued, notwithſtanding this return of the complaint, to attend his duty regularly until Sunday the 28th, when he was again taken with conſiderable bleeding, while on the patrole, and inſtantly expired.

On Tueſday the 30th, having an opportunity of inſpecting the body, the following appearances preſented themſelves:—the thorax and abdomen being laid open, we obſerved on the anterior ſurface of the right lung an incipient inflammation, which, however, could not account for the patient's death, for, on further examination, it ſeemed evidently to be occaſioned by the hæmorrhage. There were alſo ſome adheſions, apparently rather veſtiges of former than of any recent inflammation. There were no tubercles. A portion of the aorta was oſſified. All the abdominal viſcera were ſound. In the ſtomach there was ſome coagulated blood, which had been ſwallowed; but there was not the ſmalleſt eroſion of its coats.

In the two former cafes of hæmoptyfis, I have noticed the great difficulty of curing a ruptured veffel in the lungs, on account of their conftant motion, and the great quantity of blood circulated through them; but that this difficulty might be, in general, overcome by a fteady adherence to the plan of cure there recommended, viz. moderate bleeding and purging, but particularly abftinence from liquids. The fuccefs attending the treatment of the prefent cafe muft evidently eftablifh the fuperiority of that method of cure over every other hitherto recommended. Here a blood veffel, of confiderable magnitude, was ruptured in a part of the body which, from its natural office, muft be in perpetual action, and where no local application could be made; yet this rupture was healed in almoft as fhort a time as the moft experienced Surgeon can heal an external accident of the fame nature, even with the affiftance of compreffes and bandages. For example, I have feen a rupture of fome fuperficial veffels require thefe applications for many days. It may be faid that the bleeding, which has been more or lefs plentifully ufed (I mean as to quantity, for it was never ufed more than once in each cafe) according to the urgency of the

the ſymptoms, was the chief mean of cure. But a practitioner, who has ſeen a patient blooded twelve or thirteen times for an hæmorrhage from the lungs and ſtill ſink under the diſeaſe, will not readily ſubſcribe to this opinion.

It may be neceſſary to obſerve that the patient to whom I allude was allowed to take, and actually did drink, ſeveral quarts of diluents in the twenty-four hours. But ſuppoſing he had recovered; after ſuch loſs of blood he muſt have remained infirm for many months: whereas this patient, who was ſo ſoon relieved by abſtinence from liquids, had he been in eaſy circumſtances, and could he have kept from labour and improper expoſure to the night air, for another week or two, might have obtained a perfect and permanent cure, without any particular diminution of bodily ſtrength.

Reſpecting the other medicines, they were doubtleſs of ſervice, and conſpired to effect a cure, which, had the uſual quantity of diluents been uſed, I am convinced, would, notwithſtanding, have been much more tedious. For in vain do practitioners attempt to leſſen diſtention by emptying the veſſels, either by purging or bleeding, if they are immediately filled again by plentiful drinking. The ſpare

uſe of liquids, therefore, may juſtly be conſidered as one of the greateſt improvements in the modern treatment of hæmorrhage: and particularly in hæmorrhages from the lungs. And why ſhould not the idea be carried farther? Indeed, from ſome caſes I have lately attended, I think I may venture to aſſert, that, in all diſeaſes of the lungs, moderate drinking will be of ſervice. For ſeeing they are a congeries of veſſels, if theſe veſſels are overfilled, or kept in a continued ſtate of diſtention, they may ſo preſs upon one another that their healthy actions ſhall be either prevented or greatly impeded, particularly the actions of the abſorbent ſyſtem: whereas, if they are but moderately filled, the different ſyſtems of veſſels are left more at liberty to exerciſe their reſpective functions, either in the buſineſs of health, or in the removal of diſeaſe. When tubercles are formed in the lungs, why ſhould they not be abſorbed? We know that the moſt ſolid tumors in other parts of the body frequently diſappear; and that even bone itſelf is capable of being abſorbed, as is clearly demonſtrated by the different changes which take place in it as well in health as in diſeaſe. And in the lungs there are many abſorbent veſſels, which, if their actions

tions were not leſſened or prevented, might ſoon remove the moſt confirmed induration of their ſubſtance. As emetics are powerful promoters of abſorption, is it not on this principle that many patients, ſeemingly labouring under tubercles of the lungs, have been cured by vomits, particularly of the ſtronger kind? I hope the time is not far diſtant when practitioners, being better acquainted with the laws and functions of this important ſyſtem, ſhall be enabled to direct its actions with more certainty, either in removing a tubercle or the moſt ſchirrhous tumor. But when this happy period arrives it can only be carried into effect by a proper regulation of the quantity of liquids; and, in general, a diminution of the uſual preſcribed quantities. Perhaps the advantages ariſing to conſumptive patients from a warm climate and the uſe of flannel, are principally from their doing the ſame thing as abſtinence from liquids, viz. determining the tide of circulation to the ſurface of the body, and thus leaving the veſſels of the lungs more empty, and, therefore, more ready to recover themſelves when under the influence of diſeaſe.

*Queen Anne Street Eaſt,*
*January 14th*, 1793.

XII. *A Case of Psoas Abscess successfully treated. By Mr.* William Smith, *Surgeon at Bideford, and Member of the Corporation of Surgeons of London. Communicated in a Letter to* Edward Whitaker Gray, *M. D. F. R. S.; and by him to Dr.* Simmons.

A YOUNG lady of this town, aged eighteen years, of a fair, ruddy complexion, and rather inclined to plumpness, was attacked whilst she was riding (thinly cloathed) over a bleak common, about the middle of December, 1787, with pain in her back, but was not prevented by it from pursuing her journey, and spending several days with her friends.

She returned to Bideford on the 30th of the same month, when I was first requested to visit her. She complained of a violent and continued pain across her back and loins, which had gradually increased from the time above mentioned, attended with shooting pains through the right groin, in the direction of the psoas muscle, and extending down the thigh; the erect posture always produced increase of pain, and every attempt to roll the thigh bone in the acetabulum

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(when I was endeavoring to detect the immediate ſeat of the diſeaſe) occaſioned the moſt excruciating torture. Her cheeks were flufhed, her tongue white and dry, with an inſatiable thirſt, her pulſe hard and full, in number 120, no ſtools had been procured for ſeveral days, and the urine was voided in ſmall quantities, and very high coloured.

Judging from theſe ſymptoms that inflammation had taken place in that portion of the cellular membrane which is immediately connected with the pſoas and iliacus internus muſcles, and, being in hopes that the ſuppurative ſtage had not yet begun, I deemed it warrantable to endeavour to effect the cure by reſolution.

I ordered her to be put to bed, with a firm injunction to preſerve the poſition recommended, which was laying on her ſide, with the thigh in a right angle with the trunk, in order to ſhorten, as much as poſſible, the ſpace between the origin and inſertion of the pſoas muſcle. Blood was taken from a large orifice in the arm, *ad deliquium*, copious ſtools were procured by means of purgative medicines and enemas, and a large bliſter was applied over the lumbar vertebræ; ſhe took an antimonial every ſix hours, with ſmall doſes of tincture of opium; and a diluent farinaceous

rinaceous diet was ſtrictly enjoined, with a total prohibition of all fermented liquors and animal food.

Notwithſtanding this mode of treatment, which ſhe ſubmitted to with great perſeverance, the ſymptomatic fever rather increaſed than diminiſhed; every attempt to move her in bed produced agony; and a perpetual anxiety and watchfulneſs rendered her ſituation truly deplorable.

On the 7th of January, 1788, a ſevere rigor took place, which was followed by ſeveral others during the three ſucceeding days.

The violence of her pains began now ſenſibly to diminiſh; her pulſe became ſofter; partial remiſſions of fever enſued; ſleep was procured by means of opium, and ſhe experienced temporary ſuſpenſion of her miſery.

Revolving in my mind the foregoing ſymptoms, I had no doubt remaining (although no external tumor yet appeared) of the exiſtence of ſuppuration, and I became every day more and more ſolicitous to examine the lumbar region and inguina, being determined to give vent to the matter as ſoon as it came within reach of the knife; this, however, from too great delicacy, was conſtantly denied me.

From

From the 7th to the 20th it was obvious that my patient loſt ſtrength daily; although the acuteneſs of the pain had ſubſided, the ſymptomatic fever continued with fewer remiſſions, profuſe perſpirations came on, with conſiderable emaciation, and the legs and thighs became anaſarcous. Her pulſe was now extremely frequent, ſmall, and tremulous, varying in number, from 120 to 140, upon the ſlighteſt agitation or exertion of body.

Wine, Broths, and Jellies, were now added to her diet, with the free uſe of cow's milk; and the maturation of the abſceſs was forwarded by warm fomentations: ſtill, however, the nurſe aſſured me (for I had ordered her to make frequent examination,) that no particular hardneſs or ſwelling appeared.

On the 29th of January, ſhe was viſited by Dr. Wavell, of Barnſtaple, at my requeſt. He confirmed me in my opinion of the exiſtence of internal ſuppuration, encouraged me in the determination of opening it, as ſoon as the ſmalleſt tumor ſhould indicate the direction it would take, and conſented to be preſent at the operation; in the mean time preſcribing for her the bark, with the occaſional uſe of opium.

On

On the 4th day of February, I was called to her in the evening; the nurſe informed me that ſhe complained of a ſwelling in the right groin, which occaſioned great pain in turning, and that ſhe no longer oppoſed an examination.

I found the tumor occupying the whole of the right groin, with evident fluctuation; the tenſeneſs of it increaſed upon raiſing her to the erect poſture, but it became flaccid upon laying her ſupine, and the whole contents might with eaſe be preſſed into the cavity of the abdomen: the ſhape of the tumor was a flattened pyriform; its greateſt length was from the ſpine of the ilium to the pubis; and there was little or no diſcoloration.

On the 5th of February, in the morning, in the preſence of Dr. Wavell, I opened the tumor, by making a puncture with a double-edged biſtoury below and in the direction of Poupart's ligament, and gave vent to a large quantity of brown, ichorous matter, the ſtench of which was ſo intolerably offenſive, that with difficulty we could remain in the room whilſt the aſſiſtants were collecting it in baſons, napkins, &c; and, incredible as it may appear, between thirty and forty of the latter were completely ſoaked in the firſt few hours after the operation. The deliquium

deliquium induced by this ſudden and great depletion was ſuch, that I was under the neceſſity of ordering an aſſiſtant to preſs, at intervals, upon the opening, until the patient's ſtrength was ſufficiently recruited by wine and volatiles to bear a freſh diſcharge. Large portions of black, putrid, cellular ſubſtance floated through the aperture, and the firſt day elapſed before any kind of dreſſing could be retained, as the ſlighteſt motions of the body threw off conſiderable quantities of the ſame membranous ſloughs and fetid ſanies.

Dr. Wavell preſcribed for her half a drachm of peruvian bark in a ſtrong decoction of the ſame every five hours, with one grain of opium; and ordered ſtools to be procured by occaſional enemas.

The room was well ventilated, and the putrid effluvia counteracted, as much as poſſible, by antiſeptic fumigations of camphor, vinegar, &c.

In a few days after the operation, her appetite for food returned, and conceiving our firſt ſtep was to adopt a nouriſhment proportionate to the daily waſte, I determined to arrange the order of her diet, and carefully obſerve the quantum of food ſhe could take in a day.

Her

Her diet conſiſted of boiled chickens, hartſhorn and calves-feet jellies, milk, ſoups, and blanc-mange, with the free uſe of port wine.

During the violence of the diſcharge, I found her ſtomach would bear very well two quarts of milk and a bottle of port wine every day, beſides her dining on chickens, and taking every two or three hours a cup of jelly, &c.

For the firſt three weeks the diſcharge continued profuſe, thin, and putrid, excoriating the lips of the aperture, and bringing along with it conſiderable portions of ſloughy cellular membrane, which ſometimes choaked up the opening and obſtructed the drain: her pulſe was ſeldom under 120 in number, ſmall, and hard; a conſtant anxiety prevented ſleep, and the emaciation of the arms and trunk became every day more viſible, whilſt the lower limbs were bloated with anaſarca to the rim of the belly. Obſerving that every elevation of body poured out a torrent of ſanies, I ordered her to be gently raiſed on pillows, inclining to the diſeaſed ſide, in order to obtain a depending orifice from the ſac, and thereby effect a more regular diſcharge.

By the firſt week in March the diſcharge was ſomewhat abated, and the matter become of a thicker conſiſtence, of a paler brown colour, and

and the ſmell was leſs offenſive; the ſymptomatic fever alſo was diminiſhed; her pulſe (in number 100) was more ſoft and open, ſleep was obtained by ſmall doſes of opium, and I began to conceive hopes that the caſe might terminate favourably.

Notwithſtanding theſe encouraging appearances, the dropſy of the lower limbs remained, the cuticle burſt in ſeveral places, and a quantity of lymph oozed out. Suſpecting the continuance of this troubleſome ſymptom to be the effect of mere local debility, (the ſkin having, from long preternatural diſtention, loſt its contractile power,) I made a gradual preſſure with flannel rollers, beginning at the feet, and finding I gained ground on the complaint thereby, I increaſed the preſſure every day, and by that mean gradually removed the whole œdema.

By the 25th of March the quality of the diſcharge was much improved; the fætor was gone, and it had a true purulent conſiſtence, leſſening in quantity every day: her pulſe became natural, and her tongue clean; her ſleep was undiſturbed and refreſhing, without the aid of opiates; the alvine diſcharges required little aſſiſtance from laxatives, and the cata-

menia, which had been obſtructed from the firſt attack, again began to flow.

On the 26th ſhe complained of great pain in her thigh, on the external part, a little below the great trochanter. Upon examination, a fluctuation (though deep ſeated) beneath the faſcia was manifeſt; and ſuſpecting (as the wound in the groin had diſcharged very little for ſeveral days) that the matter had made its way through the interſtices of the muſcles, I made a ſmall inciſion, which gave vent to about ſix ounces of pure pus, and having obtained thereby an orifice ſtill more dependent, the one in the groin ſoon cloſed.

She gained ſtrength now very rapidly; the anaſarca was gone; the fever, and its concomitant ſymptoms, had alſo left her; the wound of the groin was cloſed; and a ſmall aperture in the thigh diſcharged about an ounce of purulent matter at every dreſſing.

Being apprehenſive, however, that a long ſinus might yet remain, and that the delicate union of the cloſed parts might again be ſeparated by any ſudden turning or motion of the body, I ſtill enjoined the moſt abſolute reſt.

On the 10th of April, I perceived a crimſon ſuffuſion on the ſkin round the laſt opening, extending

extending to the rim of the belly, and conceiving that an adhefive inflammation had taken place, which (if unmolefted) would unite the fides of the remaining finus, I withdrew a fmall doffil, and covered the wound fuperficially with lint.

My conjecture proved true, for in two or three days the difcharge totally ceafed, fhe gradually recovered her ftrength and blooming complexion, has enjoyed an uninterrupted ftate of health ever fince, and is totally free from lamenefs.

The exciting caufe in this inftance feems evidently to have been expofure to cold; and the happy termination of the difeafe proves that fuccefs may be expected fometimes to attend thefe deplorable cafes, which are too often (particularly in hofpitals) given up as abfolutely incurable.

During the progrefs of this cafe I always kept the following confiderations in view:

1. To prevent, as much as poffible, the admiffion of external air into the cavities, by operating by puncture only.

2. To appeafe pain and irritation, by a libe-

ral uſe of opium, and the moſt ſimple ſuperficial dreſſings.

3. To endeavour to proportionate the quantum of nouriſhing diet and tonic medicines to the daily waſte by ſuppuration.

And, 4. To ventilate the room frequently, by paſſing currents of pure air through it; for which the ſituation of the houſe was peculiarly favourable, being by the river ſide.

*Bideford,*
Feb. 4, 1793.

XIII. *Caſe of Phlegmonic Inflammation, with Reflections on certain Effects of Heat and Cold on the living Syſtem. By* Thomas Beddoes, *M. D.*

A PATIENT lately mentioned to me, among the particulars of her complaint, a circumſtance which ſeems, both on account of its ſingularity and of the illuſtration it affords of an important principle in animal nature, to be worth recording. The caſe was one of thoſe very common caſes where a ſmall irregularity in

in diet, expoſure to cold, &c. produced pain and diſorder in the bowels, ſometimes ariſing to a ſevere fit of the colic. The patient having one day occaſion to waſh ſome butter, conceived that by removing her hands occaſionally out of the cold ſpring water into warm water, ſhe ſhould have a better chance of eſcaping the accuſtomed complaint in her bowels. She accordingly heated ſome water as hot as ſhe could well bear it, and, from time to time, tranſferred her arms out of the cold into the hot water, immerſing them pretty deep in the latter. It was on a Saturday in ſpring: the next morning ſhe was awakened by violent pain under each axilla, and was likewiſe ſenſible of a conſiderable ſwelling under each. The inflammation continued, and by Tueſday morning the tumors had increaſed, as ſhe ſays, to the ſize of a twopenny loaf each. They ſoon afterwards broke, and diſcharged a large quantity of pus. In about a fortnight both wounds were healed. Theſe circumſtances indicate a true phlegmonic inflammation, which, I ſuppoſe, may be fairly aſcribed to the alternate action of heat and cold.

I know not whether it has been obſerved that the inflammations, particularly thoſe of the eyes, which are ſo frequent in thoſe hot climates

where it is the cuſtom to ſleep during the ſummer in the open air, are to be referred to the ſucceſſion of heat to cold. Travellers, eſpecially thoſe into Egypt, have variouſly attempted to account for this phenomenon. Haſſelquiſt imputes it to certain miaſmata ariſing from the almoſt empty reſervoirs in which the water of the Nile is preſerved from inundation to inundation. This is, however, a mere hypotheſis, unconfirmed by any ſtrict analogy; nor is the ſuppoſed cauſe in any way brought home to the effect. As little, in my opinion, can the inflammation of the eyes be aſcribed to the influence of the nocturnal light of the heavens upon the eye, the eyelids being more or leſs cloſed during ſleep. The cauſe ſeems inadequate. It is common in this country to ſleep in chambers not leſs ſtrongly illuminated (if not more ſo) than in Egypt during the night, without any inconvenience to our ſight. Beſides, I think, if we could ſuppoſe the eye to be ſo dazzled by the light of the night as to be injured, the injury ought to fall upon the nerve and not upon the eyelids and external parts. The nitrous particles with which Alpinus imagines the atmoſphere of Egypt to be impregnated will not, I ſuppoſe, be conſidered

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as a cauſe more probable than any of the preceding: but the following paſſage may ſerve to give an idea of the nature of the complaint in queſtion, and its frequency at Cairo. "Plurimaſque (oculorum lippitudines) Cayri eaſdemque per omnia anni tempora homines invadere ob nitroſum pulverem, qui continuè oculos habitantium mordicat, et calefacit, obſervatur, longè maximéque in æſtatis primâ parte, quo tempore calor ambientis ſummé calidi oculos inflammat, taliumque morborum numerum auget. *Sparſim* vero per urbem toto anno hæ oculorum inflammationes vagantur; atque *epidemicæ plurimæ* in primâ æſtatis parte calidiſſimâ inæqualiſſimâque ob vehementiſſimum * meridionalium ventorum calorem, atque inflammatarum arenarum copiam, quæ ab iiſdem ventis aſportantur. Eo enim anni tempore è centum hominibus quinquaginta ſaltem lippientes obſervantur." (De Medicin. Ægypt p. 24.). The flying ſand muſt be troubleſome, and probably, in many caſes, ſupports and increaſes the inflammation, and in ſome may give riſe to it: but the following

* See Niebuhr's Thermometrical Tables in the firſt volume of his Travels.

fact, which ſeems to me to render the induction complete, ſhows that the true and general cauſe is the great inequality between the temperature of the night and day; to which cauſe ſignal effect is given by the practice of ſleeping *ſub dio*.

Mr. Clarkſon (in his Eſſay on the impolicy of the African ſlave trade) informs us, (p. 71) that "when the ſlaves are brought on board, the ſeamen, to make room for them, are turned out of their apartments between decks, and ſleep, for the moſt part, either on the deck or in the tops of the veſſel during the whole of the middle paſſage; or from the time of their leaving the coaſt of Africa, (where the days are exceſſively hot, and the dews exceſſively cold and heavy, *ibid.* p. 68) to that of their arrival at the Weſt-India iſlands." "From this bad lodging—he proceeds—and this continual expoſure to colds and damps, and ſuddenly afterwards to a burning ſun, fevers originate, which carry many of them off! Nor is this the only effect which this continual viciſſitude from heat to extreme dampneſs and cold has upon the ſurviving crew: inflammatory fevers neceſſarily attack them. This fever attacks the whole frame: the eye feels the inflammation moſt. This inflammation terminates either in diſperſion or ſuppuration: in the firſt inſtance

inſtance the eyes are ſaved; in the latter, they are loſt."

The inflammation of the eye is not the only diſeaſe produced in Egypt by the ſucceſſion of hot days to cool nights any more than on board our ſlave ſhips; in both ſituations cauſes and effects run parallel, as the reader will find upon recurring to Alpinus and the later travellers. The well-known danger of expoſure to dews in hot climates, and indeed in all climates, in certain caſes, ſeems to depend on the ſame principle. It is alſo probable that the heat of the preceding day enables the dews of the night to prepare the ſyſtem for the ſtimulating effects of the heat of the ſucceeding day; ſo that of two perſons who ſhould expoſe themſelves without precaution to the cold of night and the heat of the following day, he who ſhould have been moſt exhauſted the day before by the heat, would, if other circumſtances could be rendered alike equal, be moſt injured by the next alternation.

Several circumſtances, ſuch as the redneſs and ſwelling of parts expoſed to cold, together with the frequent occurrence of inflammatory diſorders not long after expoſure to cold, were calculated to miſlead obſervers into a belief that

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theſe diſorders were the direct effect of cold. Yet the great difference in the ſtate of a part during inflammation, and under the influence of cold, might have induced them to ſuſpect that ſo ſlight an analogy might be illuſive: and after taking into the account other well-aſcertained facts, they ought to have concluded that the theory was falſe. Linnæus, in a paper in the Amœnitates Academicæ, expreſſes his aſtoniſhment at the impunity with which the heated Laplander rubs himſelf with ſnow, or even rolls in the ſnow, and drinks the cold ſnow-water. We every day ſee horſes in a ſtate of the moſt profuſe perſpiration freely waſhed with cold water, and always without injury. I have ſeveral times within theſe two years cauſed horſes, accuſtomed to be ſtabled, to be turned out for a ſingle night in winter: and no cough, catarrh, or other diſorder, has ever been the conſequence. It appears therefore to me that, within certain limits, and thoſe not very narrow, the tranſition from a higher to a lower temperature is attended with no danger to animals in a ſtate of tolerable health; and a perſon, I conceive, might ſuddenly paſs from an higher to a lower temperature without inconvenience, even where the difference is ſo great as

to

to be capable of producing conſiderable inflammation, if the change ſhould be made with equal celerity in a contrary direction. On this, though an intereſting ſubject for obſervations on man, and experiments on animals, we want preciſe facts; and I ſtate the principle in order to induce obſervers to compare with it the facts that fall in their way.

Beſides the ſucceſſion of heat to cold, and *vice verſa*, there is a third caſe well worthy of conſideration; and this where part of the body is expoſed to one of theſe powers, and the remaining part to the other; as, for inſtance, where a ſtream of comparatively cold air flows upon part of the body of a perſon ſitting in a warm room, and perhaps alſo drinking ſtimulating liquors. In making chemical experiments it often happens that a cold (catarrh) is taken, if the hands be much immerſed in cold water, when the elaboratory is much heated; by adding warm water to raiſe the temperature of that in the trough this danger is eaſily avoided. In theſe caſes the effect ſeems to be the ſame as that of the ſucceſſion of heat to cold. In perſons whoſe bowels are extremely liable to be affected, it ſometimes happens, as I have myſelf known it to happen, that the removal of a

foot into a cold part of the bed, after the body has become warm in bed, ſhall bring on acute pain in the bowels; and yet no pain is produced in getting into bed, though the temperature be the ſame, and perhaps lower, than that of the part into which the foot is removed; and probably total immerſion in cold water would not produce any pain in the bowels. The laws of ſuch phenomena, however deſerving of inveſtigation, have as yet ſcarcely been an object of attention with pathologiſts. It is probable that the phenomena, in any given caſe, are regulated by two circumſtances: firſt, by the exceſs of the heat (or the ſtrength of the ſtimulus, whatever it be) to which the greater part of the body is expoſed, above that to which the ſmaller is expoſed. 2. The ſecond circumſtance is the difference between the extent of the heated and cooled ſurfaces. When the latter is not extremely minute, and yet confined within moderate limits, the inflammatory effect ſeems to be conſiderable.

Should the circumſtances be reverſed, and a ſtream of air ſo warm as to convey heat to the body, inſtead of carrying it away, play upon a ſmall part of its ſurface, the reſt being expoſed to a moderate, or a low temperature, it is probable

bable the reſult would be the ſame as when moderate cold ſucceeds to warmth; *i. e.* no bad effect would follow.

But I have added theſe latter ſpeculations with a view to ſhow how little has yet been aſcertained concerning the operation of powers to whoſe influence we are every moment expoſed; and undoubtedly we cannot expect the deſideratum to be ſupplied, till obſervers are rendered fully ſenſible of its exiſtence.

XIV. *Obſervations on the good Effects of Cauſtics in Caſes of White Swellings of the Joints. By Mr.* Bryan Crowther, *Surgeon to Bridewell and Bethlem Hoſpitals.*

THE great ſucceſs generally attending the uſe of cauſtics in curvatures of the ſpine, ariſing from a diſeaſed ſtate of the vertebræ, or of their ligaments, has induced me to extend the remedy to white ſwellings of the joints of the limbs. I am aware that Mr. Pott applied Cauſtics a little above and a little below ſcrophulous joints of the

the limbs *, but his practice was not so successful as in cases of curved spine. The failure has been supposed to be owing to the greater distance of the limb from the heart; it may be rather apprehended, that in the extremities the application was not near enough to the disease.

This opinion has something more than probable conjecture to recommend itself; as in the last of the cases I shall relate, I made one issue on the integuments covering the external condyle of the thigh-bone, and another in the hollow above the knee; and repeated attentive observations and enquiries satisfied me that the external issue afforded greater relief than the one made above the joint, which induced me to bring the issue from above the knee, by the plastered sponge, down upon the inner condyle of the thigh-bone; and the advantage arising from merely changing the situation of the sore has fully answered my expectations.

These ideas of the malady and the remedy led me to embrace the first opportunity of applying the caustic on each side of the diseased joint. In doing this I was induced to apply it

* Vid. Vol. iii. of Mr. Earle's Edition of Mr. Pott's works, pages 497 and 498.

where

where the ſoft parts were thickeſt. When the eſchars were ſeparated I kept the ſores open, by an occaſional dreſſing of the *Ung. Cantharid.* or by eſcharotic applications; but before it could be known what effect the cauſtic would produce, I found that the iſſue ointment, as well as the eſcharotic applications, gave more pain than the patient could well bear. To promote a diſcharge from the ſores in an eaſier way, therefore, I made uſe of a piece of ſponge dipt in melted wax, and preſſed flat, which was cut nearly to the ſize of the ſore, to which it was confined by croſs ſlips of adheſive plaſter. The ſame intentions may be anſwered by pouring melted wax on two or three layers of lint laid on each other; but whether the lint or the ſponge be uſed, the waxed application ſhould be leſs than the ſores, ſo as to allow room ſufficient for the granulations at their edges to riſe above its ſurface; thus will the waxed lint or ſponge be confined in its ſituation, the uſe of the bliſter ointment be rendered unneceſſary, and the bandage required to keep on the dreſſings will prevent any fungus that can be diſtreſſing to the patient, or troubleſome to the ſurgeon. Should the ſores contract, they may be enlarged to the extent wiſhed for, by applying ſponge that has been

been dipped in the melted empl. attrahens. Sponge thus prepared will ſwell out, which is not the caſe when it is filled merely with wax.

The patients, in fine weather, ſhould be in the open air as much as poſſible, aſſiſted by a crutch to take off the weight of the body from the diſeaſed limb; they ſhould be allowed a nouriſhing diet, with the uſe of bark, and, in ſome caſes, opium.

That the propoſed means of relief do not confine thoſe who labour under this diſeaſe to the houſe, is a very happy circumſtance to all, but more eſpecially to hoſpital patients.

Of the uſual remedies in this complaint, bliſters ſeem to be the moſt promiſing. They afford indeed, in general, only a temporary relief; but they ſhould be applied to the joint when the pain is excruciating, as they prepare the ſkin for the action of the cauſtic; it being certain that the latter does the moſt execution in caſes where the ſkin has been recently bliſtered.

This happened in the caſe of Stephen Raſhfield*; in that inſtance we were obliged, on

* See Caſe I.

account

account of the pain the patient felt, to examine the dreſſings; and, on removing them, found that the cauſtic immediately covering the new-form'd ſkin, had there made a deeper eſchar than on the original ſkin. In ſcrophulous joints, not attended with much pain, as generally is the caſe when the diſeaſe is confined to bone, recourſe ſhould be immediately had to the cauſtic.

When bliſtering diſtreſſes the patient by ſtrangury, perhaps ſinapiſms might be ſubſtituted with equal effect. I have obſerved that they will procure more diſcharge; and this from a ſurface leſs ſuperficial than a bliſter. In a manuſcript, in my poſſeſſion, without a date, entitled 'Commentaries on Monro's Oſteology' I find ſinapiſms recommended in dropſies of the joints, in preference to bliſters, as being more manageable, and their effect more laſting.

The following caſe related by Fabricius ab Aquapendente *, from its analogy to our preſent ſubject, will probably not be thought unworthy of peruſal. "Nobilis vir in conſiſtenti "ætate conſtitutus, cum ex fluxione pituitoſa "& frigida genu haberet valde tumidum, et ita "obduratum, ut penitus immobile factum eſſet,

* De chirurg. operat. cap. 106.

" et inflexibile, vocati ad hujuſmodi curam " Capivaccius, et ego, exiſtimavimus caſum eſſe " inſanabilem; tamen ut aliquid tentaremus, ſo- " latii potius egrotantis gratia, cœpimus ipſum " purgare, ut tuta adminiſtraremus, interea a " quodam empirico emplaſtrum ex quadam " herba confectum, quam ego puto flammu- " lam fuiſſe, impoſitum fuit, quod ſtatim in- " flammationem inſignem in genu excitavit, " cum rubore, calore & dolore; et ab ea hora " cepit æger aliquantulum genu movere; ſen- " ſimque ita proceſſit, ut tandem ſanus factus " ſit."

This diſeaſe is now and then cured, though more frequently only relieved, by an abſceſs forming in the vicinity of a diſeaſed joint. In theſe caſes the ſuppurative proceſs ſeems neceſſary to a cure; but when ſymptoms of recovery do not ſpeedily follow, the patient becomes hectic, and at length dies, after enduring great pain and miſery, unleſs this fatal termination is prevented by a timely amputation of the limb.

The cauſtic I have made uſe of in this diſeaſe has been the cauſtic powder prepared at Apothecaries Hall, and made into a paſte by the addition of a little *Lixiv. Saponac.* and ſoft ſoap; but

but whatever eſcharotic may be preferred it ſhould remain as long a time on the part as from the thickneſs of the integuments can be done with ſafety; or, rather, till a ſufficient depth of eſchar is made, that can ſecure to the ſurgeon a granulating ſurface. The pain the patient feels, and the introduction of the point of a lancet into the eſchar, will beſt enable us to aſcertain the execution done by the cauſtic.

The ſize of the ſores muſt be determined by the patient's health, and the progreſs the diſeaſe has made.

As the bones at the articulations are more thinly covered than other parts of the body, I would propoſe that the ſores in general ſhould be made as large as a crown piece. How long they ſhould be kept diſcharging can be determined only by their effect; but I would recommend their remaining open (though a little contracted) for ſome time after the cure.

It is worthy of remark, that in the caſes where the cauſtic, with the ſubſequent treatment as above recommended, has been tried, collections of diſeaſed fluids in and about the ſcrophulous joint have been diſperſed, and thereby the mor bid enlargement of the joint reduced.

## CASE I.

The firſt caſe in which the cauſtics were applied was that of Stephen Raſhfield. He had been afflicted, according to his own account, with a white ſwelling of his knee eight years. During the firſt four of theſe the diſeaſe, he obſerved, had made a conſiderable progreſs, till an abſceſs formed on the outſide of the joint, which was opened by Mr. Pitts, late ſurgeon of St. Bartholomew's Hoſpital, and diſcharged half a pint of matter. This abſceſs remained open ten months, during which time he experienced great relief. Soon after this period he relapſed, and from that time became worſe.

He applied to me in April 1792; and, beſides this ſcrophulous knee, which was greatly enlarged and much contracted, he had nodes of the tibia on the other leg, attended with nocturnal pains, which he ſaid could not be venereal, as he had never been in the way of contracting ſuch a complaint. They yielded, however, to a mercurial courſe, which afforded no relief to the diſeaſed joint. His pains being excruciating, a bliſter was applied over the whole knee; this

this procured a temporary eaſe, but did not tend to alter the ſtate of the joint. Cauſtics were therefore tried in the manner I have recommended, and though this caſe did not ſucceed, yet the patient for many weeks found himſelf relieved by them, and the ſize of the knee was reduced.

In the month of December he was admitted into St. Thomas's Hoſpital, where he underwent amputation.

## CASE II.

Charles Sellers applied to me in June 1792, on account of a ſcrophulous knee which had been diſeaſed eighteen years. It was nearly twice as large as the ſound knee, and was attended with violent pain. A bliſter was applied to it, which afforded him no relief; cauſtics therefore were had recourſe to, and when the eſchars were digeſted off he became eaſier; and in a few weeks the knee was free from pain, and much diminiſhed in ſize. His health at the ſame time was greatly improved.

Some of my medical friends, who had ſeen him previouſly to the application of the cauſ-

tics, noticed their effects with pleasure. He continued to go on well, and we had every reason to hope for a gradual cure till the middle of November, when a large abscefs formed in the ham. After this his health suffered so much from the quantity of matter discharged, that he requested me to take off his limb, which I did on the 25th of December. The diseased knee was then reduced very nearly to the size of the other. His stump is now perfectly healed, and his health re-established.

## CASE III.

Elizabeth Platt, of Hoxton, about seven years of age, a little before Christmas 1791, was observed by her mother to walk lame, which was attributed to chilblains; but, on undressing her, her mother discovered that one knee was larger than the other. On the 6th of April following I visited the patient, and found her labouring under symptoms of hectic fever. Her knee joint was then much contracted, incapable of flexion or extension, and much enlarged, particularly the inner condyle of the thigh bone. As her pain was not violent, except

when

when the limb was moved, recourſe was immediately had to the cauſtic, which has effected a re-eſtabliſhment of her health, a diminution in a great degree of the enlargement of the joint, with a perfect recovery of its motion, and a conſiderable relaxation of the tendons of the flexor muſcles, the remaining contraction of which ſeems the only impediment to the full exertion of the limb; as ſhe can bend the joint with eaſe, and can extend the leg as far as the contraction of the tendons will admit of.

Large diſcharges ſuddenly produced from the ſurface of the iſſues ſeem to relieve the diſeaſe, and amend the conſtitution, much more than a regular and gradual drain. This remark was made in Platt's caſe ſince Chriſtmas laſt; as before that time the means of dilating the ſores by a plaſtered ſponge, and conſequently increaſing the diſcharge, had not occurred to me.

It may be thought, and with good reaſon, that my experience of the efficacy of cauſtics in theſe caſes is too inconſiderable to prove what degree of confidence they may merit as a remedy in ſuch complaints. The good effects that were produced by them in the inſtances I have related ſeem indeed ſufficient to recommend them

to the notice of ſurgeons in ſimilar caſes; but the utility of this, or of any other mode of treatment can be ſatisfactorily aſcertained only by an extenſive trial; and I ſubmit the above obſervations to candid practitioners that they may augment or correct them.

*Boſwell Court,*
April 27th, 1793.

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XV. *On the Cure of the Elephantiaſis. By* At'har Ali' Khán, *of Dehli.* Vide *Aſiatick Reſearches: or, Tranſactions of the Society inſtituted in Bengal, for inquiring into the Hiſtory and Antiquities, the Arts, Sciences, and Literature of Aſia. Volume II.* 4to. Calcutta, 1790.

IN an introductory note to this paper, Sir William Jones, the learned preſident of the ſociety, obſerves, that the diſeaſe which is the ſubject of it has been long known in Hinduſtan, and that the writer of it, whoſe father was phyſician

ſician to Nádir Sháh, and accompanied him from Perſia to Dehli, has aſſured him that it rages with virulence among the native inhabitants of Calcutta.

This diſeaſe, Sir William remarks, is the *judhám* of the Arabs, or *khórah* of the Indians. It is alſo, he adds, called in Arabia *dâül'âſad*, a name correſponding with the *leontiaſis* of the Greeks, and ſuppoſed to have been given in alluſion to the grim, diſtracted, and *lion-like* countenances of the miſerable perſons who are affected with it. The more common name of the diſtemper is *elephantiaſis*, or, as Lucretius calls it, *elephas*, becauſe it renders the ſkin, like that of an elephant, uneven and wrinkled, with many tubercles and furrows; but this complaint the learned preſident obſerves, muſt not be confounded with the *dâül'fil*, or ſwelled legs, deſcribed by the Arabian phyſicians, and very common in India. It has no fixed name in Engliſh, though Hillary, in his obſervations on the diſeaſes of Barbadoes, calls it the *leproſy of the joints*, becauſe it principally affects the extremities, which, in the laſt ſtage of the malady are diſtorted, and at length drop off: but ſince it is in truth a diſtemper corrupting the whole maſs of blood, and therefore conſidered by

Paulus

Paulus Ægineta as an univerſal ulcer, it requires, Sir William thinks, a more general appellation, and may properly be named the *black leproſy*; which term is in fact adopted by Sauvages and Gorræus, in contradiſtinction to the white leproſy, or the *beres* of the Arabs, and *leuce* of the Greeks.

This diſeaſe, by whatever name we diſtinguiſh it, is peculiar to hot climates, and has rarely appeared in Europe. Lucretius ſuppoſes it confined to the banks of the Nile; and it has certainly been imported from Africa into the Weſt India iſlands by the black ſlaves.

With reſpect to the remedy recommended for the cure of this diſeaſe in Hinduſtan, the learned preſident obſerves, that whatever apprehenſions may be formed of future danger from the diſtant effect of arſenick, even though it ſhould eradicate a preſent malady, yet as no ſuch inconvenience has ariſen from the uſe of it in India, and as experience muſt ever prevail over theory, he cannot help wiſhing, that this ancient Hindu medicine may be fully tried under the inſpection of the European ſurgeons in that country. Should it, he adds, be thought that a mixture of ſulphur muſt render the poiſon leſs active, it may be adviſable, at firſt, to adminiſter

niſter orpiment, inſtead of the cryſtalline arſenick.

We come now to the paper itſelf, which we ſhall here give entire.

' God is the all-powerful healer.

' In the year of the Meſſiah 1783, when the ' worthy and reſpectable *Maulavi* MI'R MUHAMMED HUSAI'N, who excels in every ' branch of uſeful knowledge, accompanied Mr. ' Richard Johnſon from Lac'knau to Calcutta, ' he viſited the humble writer of this tract, ' who had long been attached to him with ſincere affection, and in the courſe of their converſation, " One of the fruits of my late excurſion, ſaid he, is a preſent for you, which " ſuits your profeſſion, and will be generally " uſeful to our ſpecies: conceiving you to be " worthy of it by reaſon of your aſſiduity in " medical inquiries, I have brought you a pre- " ſcription, the ingredients of which are eaſily " found, but not eaſily equalled, as a powerful " remedy againſt all corruptions of the blood, " the *judham*, and the *Perſian* fire, the remains " of which are a ſource of infinite maladies. " It is an old ſecret of the Hindu phyſicians; " who applied it alſo to the cure of cold and " moiſt

" moiſt diſtempers, as the palſy, diſtortions of " the face, relaxation of the nerves, and ſimilar " diſeaſes : its efficacy too has been proved by " long experience, and this is the method of " preparing it.

" Take of white arſenic, fine and freſh, one " *tôlá* ; of picked black pepper ſix times as " much : let both be well beaten at intervals " for four days ſucceſſively in an iron mortar, " and then reduced to an impalpable powder in " one of ſtone, with a ſtone peſtle, and thus " completely levigated, a little water being " mixed with them. Make pills of them as " large as tares, or ſmall pulſe, and keep them " dry in a ſhady place *.

" One

* The following note to the above paſſage is by Sir William Jones : ' The loweſt weight in general uſe among the ' Hindus is the *reti*, called in Sanſcrit either *rettica* or *rac-* ' *tica*, indicating *redneſs*, and *criſhnalà* from *criſhna*, *black* ; ' it is the *red* and *black* ſeed of the *gunjà*-plant, which is a ' creeper of the ſame claſs and order at leaſt with the *glycyr-* ' *rhiza* ; but I take this from report, having never examined ' its bloſſoms. One *ratticà* is ſaid to be of equal weight ' with three barley corns, or four grains of rice in the huſk ; ' and eight *reti* weights, uſed by jewellers, are equal to ' ſeven carats. I have weighed a number of the ſeeds in ' diamond ſcales, and find the average apothecary's weight ' of

" One of thoſe pills muſt be ſwallowed morn-
" ing and evening with ſome *betel*-leaf, or, in
" countries where *betel* is not at hand, with
" cold water: if the body be cleanſed from
" foulneſs and obſtructions by gentle cathar-
" tics and bleeding, before the medicine is
" adminiſtered, the remedy will be ſpeedier."

' The principal ingredient of this medicine
' is the arſenic, which the Arabs call *ſhucc*, the
' Perſians *mergi múſh*, or *mouſe-bane*, and the
' Indians *ſanc'hyá*; a mineral ſubſtance ponde-
' rous and *cryſtalline*; the orpiment, or yellow
' arſenic, is the weaker ſort. It is a deadly
' poiſon, and ſo ſubtil, that when mice are kil-
' led by it, the very ſmell of the dead will de-
' ſtroy the living of that ſpecies; after it has

' of one ſeed to be a grain and five ſixteenths. Now in the
' Hindu medical books ten of the *rattiçà* ſeeds are one
' *máſhaca*, and eight *máſhacás* make a *tólaca* or *tólà*; but in
' the law books of Bengal a *máſhaca* conſiſts of *ſixteen rattiçás*,
' and a *tólaca* of five *máſhà's*; and, according to ſome authori-
' ties, *five reti's* only go to one *máſhà*, *ſixteen* of which make
' a *tólaca*. We may obſerve, that the ſilver *reti* weights, uſed
' by the Goldſmiths at Banáres, are *twice* as heavy as the
' *ſeeds*; and thence it is that *eight reti's* are commonly ſaid
' to conſtitute one *máſhà*; that is, *eight* ſilver weights, or
' *ſixteen* ſeeds; eighty of which ſeeds, or 105 grains, con-
' ſtitute the quantity of arſenic in the Hindu preſcription.'

' been

'been kept about ſeven years it loſes much of
'its force: its colour becomes turbid, and its
'weight is diminiſhed. This mineral is hot and
'dry in the fourth degree; it cauſes ſuppura-
'tion, diſſolves or unites according to the
'quantity given; and is very uſeful in cloſing
'the lips of wounds, when the pain is too in-
'tenſe to be borne. An unguent made of it,
'with oils of any ſort, is an effectual remedy
'for ſome cutaneous diſorders; and, mixed
'with roſe water, it is good for cold tumours
'and for the dropſy: but it muſt never be
'adminiſtered without the greateſt caution; for
'ſuch is its power, that the ſmalleſt quantity
'of it in powder, drawn, like alcohol, between
'the eyelaſhes, would, in a ſingle day, entirely
'corrode the coats and humours of the eye;
'and fourteen *reti's* of it would in the ſame
'time deſtroy life. The beſt antidote againſt
'its effects are the ſcrapings of leather reduced
'to aſhes. If the quantity of arſenic taken be
'accurately known, four times as much of
'theſe aſhes, mixed with water and drank by
'the patient, will ſheath and counteract the
'poiſon.

'The writer, conformably to the directions
'of his learned friend, prepared the medicine;

'and,

‘ and, in the ſame year, gave it to numbers
‘ who were reduced by the diſeaſes above-men-
‘ tioned to the point of death. God is his wit-
‘ neſs, that they grew better from day to day,
‘ were at laſt completely cured, and are now
‘ living (except one or two, who died of other
‘ diſorders) to atteſt the truth of this aſſertion.
‘ One of his firſt patients was a *Pârſi*, named
‘ *Menúchehr*, who had came from Surat to this
‘ city, and had fixed his abode near the writer's
‘ houſe: he was ſo cruelly afflicted with a
‘ confirmed lues, here called *the Perſian fire*,
‘ that his hands and feet were entirely ulcerated
‘ and almoſt corroded, ſo that he became an
‘ object of diſguſt and abhorrence. This man
‘ conſulted the writer on his caſe, the ſtate of
‘ which he diſcloſed without reſerve. Some
‘ blood was taken from him the ſame day, and
‘ a cathartic adminiſtered on the next. On
‘ the third day he began to take the arſenic
‘ pills, and, by the bleſſing of God, the viru-
‘ lence of his diſorder abated by degrees, until
‘ ſigns of returning health appeared; in a fort-
‘ night his recovery was complete, and he was
‘ bathed, according to the practice of our phy-
‘ ſicians: he ſeemed to have no virus left in his
‘ blood,

‘ blood, and none has been ſince perceived by
‘ him.

‘ But the power of this medicine has chiefly
‘ been tried in the cure of the *juzám*, as the
‘ word is pronounced in India; a diſorder in-
‘ fecting the whole maſs of blood, and thence
‘ called by ſome *fiſádi khún*. The former name
‘ is derived from an Arabic root ſignifying, in
‘ general, *amputation*, *maiming*, *exciſion*, and par-
‘ ticularly the *truncation or eroſion of the fingers*,
‘ which happens in the laſt ſtage of the diſeaſe.
‘ It is extremely contagious, and for that rea-
‘ ſon, the prophet ſaid: *Ferrú mina'lmejdhámi*
‘ *camá teferrú mina'l áſad*, or, “ Flee from a
‘ perſon afflicted with the judhám, as you would
‘ flee from a lion.” The author of the *bahhru'l-*
‘ *jawahir*, or *ſea of pearls*, ranks it as an infec-
‘ tious malady with the meaſles, the ſmall pox,
‘ and the plague. It is alſo hereditary, and, in
‘ that reſpect, claſſed by medical writers, with
‘ the gout, the conſumption, and the white
‘ leproſy.

‘ A common cauſe of this diſtemper is the
‘ unwholeſome diet of the natives, many of
‘ whom are accuſtomed, after eating a quantity
‘ of fiſh, to ſwallow copious draughts of milk,

‘ which

'which fail not to cauſe an accumulation of yel-
'low and black bile, which mingles itſelf with
'the blood, and corrupts it: but it has other
'cauſes; for a *bráhmen*, who had never taſted
'*fiſh* in his life, applied lately to the compoſer
'of this eſſay, and appeared in the higheſt de-
'gree affected by a corruption of blood, which
'he might have inherited, or acquired by other
'means. Thoſe, whoſe religion permits them
'to eat *beef*, are often expoſed to the danger of
'heating their blood intenſely, through the
'knavery of the butchers in the *bázár*, who
'fatten their calves with *balâwer*; and thoſe,
'who are ſo ill-adviſed as to take provocatives,
'a folly extremely common in India, at firſt
'are inſenſible of the miſchief, but, as ſoon as
'the increaſed moiſture is diſperſed, find their
'whole maſs of blood inflamed, and, as it were,
'aduſt; whence ariſes the diſorder of which
'we are now treating. The *Perſian* (or vene-
'real) fire generally ends in this malady; as
'one *Dévi Praſád*, lately in the ſervice of Mr.
'Vanſittart, and ſome others, have convinced
'me by an unreſerved account of their ſeveral
'caſes.

'It may here be worth while to report a re-
'markable caſe, which was related to me by a

'man, who had been afflicted with the *juzám* 'near four years; before which time he had 'been diſordered with the *Perſian* fire, and, 'having cloſed an ulcer by means of a ſtrong 'healing plaiſter, was attacked by a violent 'pain in his joints. On this he applied to a '*cabirája*, or Hindu phyſician, who gave him 'ſome pills, with a poſitive aſſurance, that the 'uſe of them would remove his pain in a few 'days; and in a few days it was, in fact, whol-'ly removed: but, a very ſhort time after, the 'ſymptoms of the *juzam* appeared, which con-'tinually increaſed to ſuch a degree, that his 'fingers and toes were on the point of drop-'ping off. It was afterwards diſcovered, that 'the pills which he had taken, were made of 'cinnabar, a common preparation of the Hin-'dus; the heat of which had firſt ſtirred the 'humours, which, on ſtopping the external 'diſcharge, had fallen on the joints, and there 'had occaſioned a quantity of aduſt bile to mix 'itſelf with the blood, and infect the whole 'maſs.

'Of this dreadful complaint, however cau-'ſed, the firſt ſymptoms are a numbneſs and 'redneſs of the whole body, and principally 'of the face; an impeded hoarſe voice, thin

hair,

'hair, and even baldneſs; offenſive perſpira-
'tion and breath, and whitlows on the nails.
'The cure is beſt begun with copious bleed-
'ing, and cooling drink, ſuch as a decoction
'of the *nílúfer*, or *nymphæa*, and of violets,
'with ſome doſes of manna: after which
'ſtronger catharticks muſt be adminiſtered. But
'no remedy has proved ſo efficacious as the
'pills compoſed of arſenic and pepper: one
'inſtance of their effects may here be mention-
'ed, and many more may be added, if re-
'quired.

'In the month of February, in the year juſt
'mentioned, one *Shaikh Ramazáni*, who was
'then an upper ſervant to the board of revenue,
'had ſo corrupt a maſs of blood, that a black
'leproſy of his joints was approaching, and
'moſt of his limbs began to be ulcerated: in
'this condition he applied to the writer, and
'requeſted immediate aſſiſtance. Though the
'diſordered ſtate of his blood was evident on
'inſpection, and required no particular decla-
'ration of it, yet many queſtions were put to
'him, and it was clear from his anſwers, that
'he had a confirmed *juzám*: he then loſt a
'great deal of blood, and, after due prepara-
'tion, took the arſenic pills. After the firſt

'week his malady seemed alleviated; in the 'second it was considerably diminished; and, 'in the third, so entirely removed, that the pa- 'tient went into the bath of health, as a token 'that he no longer needed a physician.'

XVI. *On the Spikenard of the Ancients. By Sir* William Jones, *Knt.* Vide *Asiatic Researches: or, Transactions of the Society instituted in Bengal, for inquiring into the History and Antiquities, the Arts, Sciences, and Literature of Asia. Volume* II. 4to. Calcutta, 1790.

THE Indian Spikenard has long been a subject of uncertainty. All agree that it is an odoriferous plant, the best sort of which, according to Ptolemy, grew about Rangamritica, and on the borders of the country now called Butan. It is mentioned by Dioscorides; but his description of it is very imperfect, and even Linnæus was not enabled to class it with certainty, though he supposed it to be a species of Andropogon. A similar opinion, as we have seen, has lately been adopted by Dr. Blane, in an ingenious essay on this subject*;

* See vol. i, p. 153.

but

but Kœnig, a diſciple of Linnæus, who died in India, aſſured the learned author of the paper now before us, that he knew not what the Greek writers meant by the Spikenard of India. Since the death of Kœnig he has conſulted, he tells us, every botaniſt and phyſician, with whom he has been acquainted, on this ſubject; but all have confeſſed, without reſerve, though not without ſome regret, that they were ignorant what was meant by the Indian Spikenard.

In order to procure information from the learned natives, it was neceſſary to know the name of the plant in ſome Aſiatic language. The very word *Nard*, the author obſerves, occurs in the Song of Solomon, but the name and the thing were both exotic. The Hebrew lexicographers imagine both to be Indian, but the word, he tells us, is in truth Perſian, and he has found it in a diſtich of an old poet, where it is not eaſy to determine whether *Nard* means the *ſtem* or the *pith*; but it is manifeſtly a part of a vegetable, and neither the *root*, the *fruit*, nor the *branch*, which are all ſeparately named. Whatever it ſignified in old Perſian, the Arabic *Sumbul*, which means an *ear* or *ſpike*, has long been ſubſtituted for it; and there can be no

doubt, he thinks, that by the *Sumbul* of *India*, the Muſelmáns underſtand the ſame plant with the *Nard* of Ptolemy, and the *Nardoſtachys*, or Spikenard, of Galen, who was deceived by the dry ſpecimens he had ſeen, and miſtook them for roots.

A ſingular deſcription of the *Sumbul*, by Abu'lfazl, who frequently mentions it as an ingredient in Indian perfumes, had for ſome time almoſt convinced our author that the true Spikenard was the *Cétaca*, or *Pandanus*. His words are, *Sumbul panj berg dáred, ceh dirázii án dah angoſhteſtu pahnái ſeh*, or, "The Sum-" bul has five leaves, ten fingers long, and "three broad." Our author was aware that the writer in queſtion, not being a botaniſt, might eaſily have miſtaken a thyrſus for a ſingle flower. He had ſeen no bloſſom, or aſſemblage of bloſſoms, of ſuch dimenſions, except the male *Cétaca*; but what moſt confirmed his opinion, was the exquiſite fragrance of the *Cétaca*-flower, which to his ſenſe far ſurpaſſed the richeſt perfumes of Europe or Aſia. Scarce a doubt remained, when he met with a deſcription of the *Cétaca* by Forskohl, whoſe words are ſo perfectly applicable to the general idea,

idea, which we are apt to form of Spikenard, that he has thought it right to give us a literal tranſlation of them: "The *Pandanus* is an in-"comparable plant, and cultivated for its "odour, which it breathes ſo richly, that one "or two *ſpikes*, in a ſituation rather humid, "would be ſufficient to diffuſe an odoriferous "air for a long time through a ſpacious apart-"ment; ſo that the natives in general are not "ſolicitous about the living plants, but *purchaſe* "*the ſpikes at a great price.*" Our author learned alſo that a fragrant eſſential oil was extracted from the flowers; and he procured from Banáres a large phial of it, which was adulterated with ſandal; but the very adulteration convinced him, that the genuine eſſence muſt be valuable, from the great number of thyrſi that muſt be required in preparing a ſmall quantity of it. Thus had he nearly perſuaded himſelf that the true Nard was to be found on the banks of the Ganges, where the Hindoo women roll up its flowers in their hair after bathing; and he imagined, that the precious alabaſter box mentioned in the ſcripture, and the ſmall onyx, in exchange for which the poet offers to entertain his friend with a caſk of old wine, contained an eſſence of the ſame kind

with the Nard he had procured; but an Arab of Mecca, who ſaw in his ſtudy ſome flowers of the *Cétaca*, informed him that the plant was extremely common in Arabia, where it was named *Cádhi*; and ſeveral Mahomedans of rank and learning have ſince aſſured him, that the true name of the India *Sumbul*, was not *Cétaca*, but *Jatámánſi*.

Our author now abandoned his firſt opinion, and began to enquire eagerly for the Jatámánſi. A freſh plant was ſoon brought to him, and appeared, on inſpection, to be a *cyperus*, the root of which had a pungent taſte, with a faint aromatic odour; but no part of it bore the leaſt reſemblance to the drug known in Europe by the name of Spikenard; and a Muſelmán phyſician from Dehli aſſured him the plant was not *Jatámánſi*, but *Súd*, as it is named in Arabic, which the author of the *Tohfatu'l Múmenïn* particularly diſtinguiſhes from the Indian *Sumbul*: "*Súd*, ſays that writer, has a roundiſh olive-"ſhaped root, externally black, but white in-"ternally, and ſo fragrant as to have obtained "in Perſia the name of *ſubterranean muſk*: its "leaf has ſome reſemblance to that of a leek, "but is longer and narrower, ſtrong, ſome-

what

" what rough at the edges, and tapering to a " point. 2. *Sumbul* means a *ſpike* or *ear*, and " was called Nard by the Greeks. There are " three ſorts of *Sumbul*, or *Nardin*; but when " the word ſtands alone it means the *Sumbul* of " India, which is an herb *without flower* or " *fruit*, (he ſpeaks of the drug only) like the " tail of an ermine, or of a ſmall weaſel, but " not quite ſo thick, and about the length of a " finger. It is darkiſh, inclining to yellow, and " very fragrant. It is brought from *Hinduſtan*, " and its medicinal virtue laſts three years."

A ſpecimen of the dry jatámánſi was procured, and found to correſpond exactly with the above deſcription of the *Sumbul*; and our author farther learned, that the merchants brought this drug from the mountainous country to the North Eaſt of Bengal; that it was the entire plant, not a part of it, and received its Sanſcrit names from its reſemblance to *locks of hair*; as it is called Spikenard, he ſuppoſes, from its reſemblance to a ſpike, when it is dried, and not from the configuration of its flowers. The Perſian author deſcribes the whole plant as reſembling the tail of an ermine; and the Jatámánſi, which is manifeſtly the Spikenard of our druggiſts, has, it ſeems, preciſely that form,

con-

conſiſting of withered ſtalks and ribs of leaves, adhering in a bundle of yellowiſh brown capillary fibres, and conſtituting a ſpike about the ſize of a ſmall finger. We may, on the whole, we are told, be aſſured, that the *Nardus* of Ptolemy, the *Indian Sumbul* of the Perſians and Arabs, the *Jatámánſi* of the Hindus, and the Spikenard of our ſhops, are one and the ſame plant.

Hitherto the *Jatámánſi* has not been found growing in any part of the Britiſh territories in India. Mr. Saunders, who met with it in Butan, where, as he was informed, it is very common, and whence it is brought in a dry ſtate to Rangpur, ſuppoſed it to be a ſpecies of the Baccharis; but our author has reaſon to think that the plant which Mr. Saunders ſaw was not the Jatámánſi, and having traced the Indian Spikenard, by this name, to the mountains of Népàl, he requeſted his friend Mr. Law, who then reſided at Gayá, to procure ſome of the recent plants by the means of the Nepaleſe pilgrims. Many young plants were accordingly ſent to Gayá, where they have bloſſomed. From one of theſe plants a drawing (for an engraving of which we muſt refer our readers to the work itſelf,) was made by Mr. Burt, a gentleman in whoſe accuracy our author expreſſes the

moſt

moſt perfect confidence, and by whoſe account he has been enabled to give a botanical deſcription of the plant. But before he proceeds to this deſcription, he endeavours to remove a prejudice, in regard to the *natural order* of the Spikenard; which they, he obſerves, who are addicted to ſwear by every word of their maſter Linnæus, will hardly abandon, and which he himſelf, he confeſſes, has abandoned with ſome difficulty. *Nard* has been generally ſuppoſed to be a *graſs*; and the word *ſtachys*, or *ſpike*, which agrees with the habit of that natural order, gave riſe, perhaps, to the ſuppoſition. There is a plant in Java, it ſeems, which moſt travellers and ſome phyſicians call *Spikenard*; and our author has been informed by the governor of Chinſura, that a Dutch author pronounces it a *graſs like the cyperus*, but inſiſts that what is called the *ſpike* is the fibrous part above the root, as long as a man's little finger, of a browniſh hue inclining to red or yellow, rather fragrant, and with a pungent, but aromatic, ſcent. From this account of it our author would have ſuppoſed, he tells us, the plant in queſtion to be the Jatámánſi, if a well-informed man, who had ſeen it in the iſland, had not aſſured him that it is a ſort of pimento, and conſequently a

ſpecies

ſpecies of myrtle. The reſemblance already mentioned between the Indian *Sumbul*, and the Arabian *Súd* or Cyperus, has led him to ſuſpect that the true Nard was a *graſs* or a *reed*; and, as Bengal abounds in odoriferous graſſes, he began to collect them from different quarters. From Colonel Kyd he received two plants with ſweet ſmelling roots; and, as they were known to the Pandits, he ſoon found their names in a Sanſcrit dictionary: one of them is called *gandhâſât'hi*, and is uſed by the Hindus to ſcent the red powder of *Sapan* or *Bakkam* wood, which they ſcatter in the feſtival of the vernal ſeaſon. The other has many names, and among them *Nagaramaſtac* and *gónarda*, the ſecond of which means *ruſtling in the water*; for all the Pandits, it ſeems, inſiſt, that *Nard* is never uſed as a noun in Sanſcrit, and ſignifies, as the root of a verb, *to ſound*, or *to ruſtle*. Soon after, Mr. Burrow brought him, from the banks of the Ganges, near Heridwàr, a very fragrant graſs, which in ſome places covers whole acres, and diffuſes, when cruſhed, ſo ſtrong an odour, that a perſon, he ſays, might eaſily have ſmelt it, as Alexander is reported to have ſmelt the Nard of Gedroſia, from the back of an elephant. From Mr. Blane, of *Lucnow*, he

he received a freſh ſpecimen of the ſame plant. This is the ſpecies of Andropogon which Dr. Blane, as we have ſeen *, ſuppoſed to be the true Nardus Indica of the ancients. Laſtly, Dr. Anderſon, of Madras, favoured our author with a complete ſpecimen of the *Andropogon Nardus*, one of the moſt common graſſes on the coaſt, and flouriſhing moſt luxuriantly on the mountains, never eaten by cattle, but extremely grateful to bees, and containing an eſſential oil, which is extracted from it in many parts of Hinduſtan, and uſed as an *âtar*, or perfume. He added, we are told, a very curious philological remark, that, in the *Tamul* dictionary, moſt words beginning with *nâr* have ſome relation to fragrance, ſo that not only the *Nard* of the Hebrews and Greeks, but even the *copia narium* of Horace, may be derived from an Indian root. On this point, however, the learned author has thought it right to obſerve that he has not met with any ſuch root in Sanſcrit, the oldeſt poliſhed language of India, and that in Perſian, which has a manifeſt affinity with it, *nâr* means a pomegranate, and *nârgil* a cocoa-nut, neither of which has any remarkable fragrance.

* Vol. i, p. 158.

None

None of these grasses bear any resemblance to the *Jatamansi*, which, our author conceives, to be the true Nardus of the ancients. He is not, indeed, of opinion that the Nardum of the Romans was merely the essential oil of the plant, from which it was denominated; but he is strongly inclined, he tells us, to believe, that it was a generick word, meaning what we now call *âtar*, and either the *âtar* of roses from Cashmir and Persia, that of Cétaca or Pandanus, from the western coast of India, or that of Aguru, or aloe-wood, from Asam, or Cochin-china, the process of obtaining which is described by Abu'lfazl, or the mixed perfume, called *âbir*, of which the principal ingredients were yellow sandal, violets, orange flowers, wood of aloes, rose water, musk, and true spikenard: all those essences and compositions, he observes, were costly; and most of them being sold by the Indians to the Persians and Arabs, from whom, in the time of Octavius, they were received by the Syrians and Romans, they must have been extremely dear at Jerusalem, and at Rome. There might also have been a pure *nardine oil*, as Athenæus calls it, but *Nardum*, our author thinks, probably meant (and Kœnig, he adds, was of the same opinion)

opinion) an Indian eſſence in general, taking its name from that ingredient, which had, or was commonly thought to have, the moſt exquiſite ſcent.

After theſe preliminary obſervations the author gives the following natural characters of the Jatamanſi.

AGGREGATE.

*Cal.* Scarce any: *margin*, hardly diſcernible.

*Cor.* One petal. *Tube* ſomewhat gibbous. *Border* five cleft.

*Stem.* Three *anthers*.

*Piſt.* *Germ* beneath. One *ſtyle* erect.

*Seed* ſolitary, crowned with a pappus.

*Root* fibrous.

*Leaves* hearted, fourfold; *radical* leaves petioled.

It appears therefore, our author obſerves, to be a ſpecies of valerian, which, in the language of Linnæus he would deſcribe, "VALERIANA JATA'MA'NSI *floribus triandris*, "*foliis cordatis quaternis radicalibus petiolatis.*"

The radical leaves, riſing from the ground, and infolding the young ſtem, are plucked up, we

we are told, with a part of the root, and being dried in the ſun, or by an artificial heat, are ſold as a drug, which from its appearance has been called *ſpikenard*; though, as the Perſian writer, already quoted, obſerves, it might be compared more properly to the *tail of an ermine*; when nothing remains but the dry fibres of the leaves, which retain their original form, they are ſaid to have ſome reſemblance to a *lock of hair*, from which the Sanſcrit name, as we have ſeen, is derived.

Two mercantile agents from Butan, on the part of the Dévárajá, or Sovereign, were examined at our author's requeſt by Mr. Harington, and informed him that the drug which the Bengaleſe call jatamanſi, "grows erect above "the ſurface of the ground, reſembling in co- "lour an ear of green wheat; that, when re- "cent, it has a faint odour, which is greatly "increaſed by the ſimple proceſs of drying it; "that it abounds on the hills, and even on "the plains, of Butan, where it is collected and "prepared for medicinal purpoſes." From Mr. Purling, who made inquiries for it among the merchants of Butan, our author had before learned that the living plant could not be obtained without an order from the Dévárajá.

XVII. *An Account of ſome chemical Experiments on Tabaſheer. By* James Louis Macie, *Eſq. F. R. S.*—Vide *Philoſophical Tranſactions of the Royal Society of London, Vol.* LXXXI. *for the Year* 1791. Part II. 4to. London, 1791.

THE Tabaſheer employed in theſe experiments conſiſted of ſeven different ſpecimens, one of which was Tabaſheer from Hydrabad*, the fineſt kind of this ſubſtance that can be purchaſed. This being in the greateſt quantity, and appearing to be the moſt homogeneous and pure, the experiments, we are told, were begun, and principally made, with it.

This Hydrabad Tabaſheer, in its general appearance, Mr. Macie obſerves, very much reſembled fragments of that variety of calcedony which is known to mineralogiſts by the name of *Cacholong*. Some pieces, he tells us, were quite opaque, and abſolutely white; while others poſſeſſed a ſmall degree of tranſparency, and had a bluiſh caſt. The latter, held before a lighted candle, appeared, it ſeems, very pellucid, and of a flame colour.

* See Vol. I. page 148.

The pieces, he obſerves, were of various ſizes; the largeſt of them not exceeding two or three tenths of an inch cubic. Their ſhape was quite irregular; ſome of them bore impreſſions of the inner part of the bamboo againſt which they were formed.

This Tabaſheer, we are told, could not be broken by preſſure between the fingers; but by the teeth it was eaſily reduced to powder. On firſt chewing it felt gritty, but ſoon ground to impalpable particles.

Applied to the tongue, it adhered to it by capillary attraction.

It had a diſagreeable earthy taſte, ſomething like that of magneſia.

No light was produced either by cutting it with a knife, or by rubbing two pieces of it together, in the dark; but a bit of this ſubſtance, being laid on a hot iron, ſoon appeared ſurrounded with a feeble luminous *auréole*. By being made red hot, it was deprived of this property of ſhining when gently heated; but recovered it again, on being kept for two months.

Examined with the microſcope, it did not appear different from what it does to the naked eye.

Mr.

Mr. Macie found that a quantity of this Tabaſheer which weighed 75.7 gr. in air, weighed only 41.1 gr. in diſtilled water whoſe temperature was 52.5 F. which makes its ſpecific gravity to be very nearly = 2.188.

Mr. Cavendiſh, he adds, who tried this ſame parcel when become again quite dry, found its ſpecific gravity to be = 2.169.

In both the experiments to aſcertain the ſpecific gravity of this ſubſtance, great care, we are told, was taken that every bit was thoroughly penetrated with the water, and tranſparent to its very center, before its weight in the water was determined.

Mr. Macie gives an account of his experiments on this ſubſtance treated with water; with vegetable colours; at the fire; with acids; with liquid alkalies; with dry alkalies; and with other fluxes: after which follow his obſervations on the other ſpecimens.

It appears from his experiments that five of the ſpecimens conſiſted of genuine Tabaſheer; but that thoſe kinds, immediately taken from the plant, contained a certain portion of a vegetable matter, which was wanting in the ſpecimens procured from the ſhops, and which

our author thinks had probably been deprived of this admixture by calcination.

The nature of this ſubſtance, Mr. Macie obſerves, is very different from what might have been expected in the product of a vegetable. Its indeſtructibility by fire; its total reſiſtance to acids; its uniting by fuſion with alkalies in certain proportions into a white opaque maſs, in others into a tranſparent permanent glaſs; and its being again ſeparable from theſe compounds, entirely unchanged by acids, &c. (all of which circumſtances are proved by his experiments) ſeem, he thinks, to afford the ſtrongeſt reaſons to conſider it as perfectly identical with common *ſiliceous earth*.

Yet from pure quartz, he obſerves, it may be thought to differ in ſome material particulars; ſuch as in its fuſing with calcareous earth, in ſome of its effects with liquid alkalies, in its taſte, and its ſpecific gravity.

But its taſte, he thinks, may ariſe merely from its divided ſtate, for chalk and powdery magneſia both have taſtes, and taſtes which are very ſimilar to that of pure Tabaſheer; but when theſe earths are taken in the denſer ſtate of cryſtals, they are found to be quite inſipid; ſo Tabaſheer, he obſerves, when made more ſolid by

expoſure to a pretty ſtrong heat, was no longer perceived, when chewed, to act upon the palate.

From Mr. Macie's experiments with liquid alkalies we learn that ſome liquid cauſtic vegetable alkali being heated in a phial, Tabaſheer was added to it, which diſſolved very readily and in conſiderable quantity; and that on expoſing this ſolution in a ſhallow glaſs to ſpontaneous evaporation in a warm room, at the end of a day or two it was converted into a firm, milky jelly, which in a few days more became whiter, and finally became quite dry and ſeparated from the glaſs. Theſe effects, however, with liquid alkali, he obſerves, are found on accurate compariſon not to be peculiar to this ſubſtance; for though it was found, on trial, that the powder of common flints, when boiled in liquid cauſtic alkali, was ſcarcely at all acted upon; and that the very little which was diſſolved was ſoon precipitated again, in the form of minute *flocculi*, on expoſing the ſolution to the air, and was immediately thrown down on the admixture of an acid; yet the precipitate obtained from *liquor ſilicum* by marine acid was diſcovered, it ſeems, even when dry, to diſſolve readily in this alkali, but while ſtill moiſt to do ſo very copiouſly, even without the aſſiſtance of

heat; and ſome of this ſolution, we are told, thus ſaturated with ſiliceous matter by ebullition, being expoſed to the air in a ſhallow glaſs, became a jelly by the next day, and the day after dried, and cracked, &c. exactly like the ſolution of Tabaſheer.

Mr. Macie obſerves that the aſhes, obtained by burning the bamboo, boiled in marine acid, left a very large quantity of a whitiſh inſoluble powder, which, fuſed at the blow-pipe with ſoda, effervеſced, and formed a tranſparent glaſs. Only the middle part of the joints, we are told, was burned; the knots were ſawed off, leſt, being porous, Tabaſheer might be mechanically lodged in them. However, the great quantity of this remaining ſubſtance, he thinks, ſhows it to be an eſſential, conſtituent part of the wood.

The aſhes of common charcoal, digeſted in marine acid, left, it ſeems, in the ſame manner an inſoluble reſiduum which fuſed with ſoda with effervеſcence, and formed glaſs; but the proportion of this matter to the aſhes, our author obſerves, was greatly leſs than in the foregoing caſe.

Mr. Macie gives the following account of a ſingular circumſtance, which, it ſeems, preſented itſelf after his experiments on this ſubſtance were

were finiſhed.—" A green bamboo, cut in the " hot-houſe of Dr. Pitcairn, at Iſlington, was " judged to contain Tabaſheer in one of its " joints, from a rattling noiſe diſcoverable on " ſhaking it; but being ſplit by Sir Joſeph " Banks, it was found to contain, not ordinary " Tabaſheer, but a ſolid pebble, about the ſize " of half a pea.

" Externally this pebble was of an irregular " rounded form, of a dark-brown or black co- " lour. Internally it was reddiſh-brown, of " a cloſe dull texture, much like ſome martial " ſiliceous ſtones. In one corner there were " ſhining particles, which appeared to be cryſ- " tals, but too minute to be diſtinguiſhed even " with the microſcope.

" This ſubſtance was ſo hard as to cut glaſs!

" A fragment of it expoſed to the blow-pipe " on the charcoal did not grow white, contract " in ſize, melt, or undergo any change. Put " into borax it did not diſſolve, but loſt its " colour, and tinged the flux green. With " ſoda it effervceſced, and formed a round bead " of opaque black glaſs.

" Theſe two beads, digeſted in ſome perfectly " pure and white marine acid, only partially " diſſolved, and tinged this menſtruum of a

" greeniſh yellow colour; and from this ſolu-
" tion Pruſſite of tartar, ſo pure as not, under
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" the above pure marine acid, inſtantly threw
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72. Scriptores Neurologici minores sive Opera minora ad Anatomiam, Physiologiam, et Pathologiam Nervorum spectantia. Tomus I. cum Tabulis æneis, edidit, notulis nonnullis illus-

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nec

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